

ALMANAC

XXV

LUNAR ECLIPSES IN CE

The almanac XXV contains a list of lunar eclipses from the 1st millennium CE to the 5th millennium CE, from the 1st century CE to the 42nd century CE.

1ST MILLENNIUM CE

In the 1st millennium CE the total number of lunar eclipses was 2 397 lunar eclipses: 859 penumbral lunar eclipses, 829 partial lunar eclipses, 709 total lunar eclipses (395 central total lunar eclipses, 314 non-central total lunar eclipses).

1ST CENTURY CE

In the 1st century CE the total number of lunar eclipses was 252 lunar eclipses: 94 penumbral lunar eclipses, 101 partial lunar eclipses, 57 total lunar eclipses (50 central total lunar eclipses, 7 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
	ECLIPSE														
0001 Jun 24	12:08:30	10508	265	-24719	78	P	t-	0.9655	1.1168	0.0565	292.6	57.9	-	23S	139W
0001 Nov 19	19:31:12	10504	264	-24714	45	N	-a	1.3768	0.3451	-0.6813	163.1	-	-	21N	108E
0001 Dec 19	08:21:41	10503	264	-24713	83	N	a-	-1.4009	0.2864	-0.7113	144.4	-	-	22N	81W
0002 May 15	07:24:24	10499	264	-24708	50	P	-h	-0.9732	1.0649	0.0797	262.1	63.6	-	19S	69W
0002 Nov 09	01:37:55	10494	264	-24702	55	P	-h	0.7405	1.5405	0.4589	325.3	153.3	-	17N	16E

0003 May 04	22:21:46	10489	264	-24696	60	T-	-p	-0.1939	2.4754	1.5286	316.8	208.7	91.3	15S	67E
0003 Oct 29	01:32:23	10485	264	-24690	65	T+	pp	0.0644	2.7921	1.6885	378.9	234.9	103.9	13N	17E
0004 Apr 23	15:31:01	10480	264	-24684	70	P	a-	0.5401	1.8412	0.8924	299.5	180.8	-	11S	170E
0004 Oct 17	01:56:45	10475	264	-24678	75	P	h-	-0.6221	1.7533	0.6804	336.0	179.4	-	8N	12E
0005 Mar 14	19:06:34	10471	263	-24673	42	N	-h	-1.3763	0.3469	-0.6812	167.2	-	-	2N	119E
0005 Apr 13	06:12:19	10470	263	-24672	80	N	h-	1.3193	0.4329	-0.5586	178.7	-	-	7S	49W
0005 Sep 06	21:58:08	10466	263	-24667	47	N	-a	1.4148	0.2516	-0.7276	134.8	-	-	6S	73E
0005 Oct 06	09:03:50	10465	263	-24666	85	N	a-	-1.2807	0.5149	-0.4986	194.5	-	-	3N	94W
0006 Mar 03	23:17:07	10461	263	-24661	52	P	-t	-0.6887	1.6339	0.5554	335.7	168.4	-	7N	58E
0006 Aug 27	13:52:44	10456	263	-24655	57	P	-a	0.6943	1.5605	0.6071	284.2	155.3	-	10S	165W
0007 Feb 20	23:03:08	10451	263	-24649	62	T+	pp	0.0269	2.8519	1.7659	375.2	234.7	105.2	12N	62E
0007 Aug 17	05:58:00	10446	263	-24643	67	T-	pp	-0.0131	2.8200	1.8477	327.0	215.2	100.2	15S	45W
0008 Feb 10	01:55:07	10441	263	-24637	72	P	a-	0.7367	1.5296	0.4832	314.2	153.2	-	16N	19E
0008 Aug 05	17:40:26	10437	262	-24631	77	P	t-	-0.7867	1.4256	0.4037	302.3	140.5	-	19S	139E
0008 Dec 31	00:54:32	10433	262	-24626	44	N	-a	-1.3035	0.4555	-0.5232	175.5	-	-	22N	32E
0009 Jan 29	11:53:32	10432	262	-24625	82	N	a-	1.3889	0.3063	-0.6871	149.4	-	-	20N	130W
0009 Jun 26	07:15:09	10428	262	-24620	49	N	-t	1.2680	0.5667	-0.5034	222.9	-	-	23S	66W
0009 Dec 20	16:35:31	10423	262	-24614	54	P	-a	-0.6418	1.6673	0.6932	292.2	164.0	-	23N	155E
0010 Jun 15	08:28:09	10418	262	-24608	59	P	-t	0.4964	1.9720	0.9229	346.7	201.7	-	23S	85W
0010 Dec 10	06:28:36	10413	262	-24602	64	T+	pp	0.0278	2.8137	1.8005	337.2	217.9	100.0	23N	55W
0011 Jun 04	15:35:56	10408	262	-24596	69	T	a-	-0.2953	2.3144	1.3180	335.3	212.7	79.8	22S	168E
0011 Nov 29	14:18:22	10403	262	-24590	74	P	t-	0.7516	1.5148	0.4436	319.1	149.5	-	22N	173W
0012 Apr 24	22:38:09	10399	261	-24585	41	N	-a	1.4691	0.1339	-0.8097	96.6	-	-	11S	64E
0012 May 24	05:32:46	10399	261	-24584	79	N	a-	-1.0273	0.9482	-0.0027	240.2	-	-	21S	42W
0012 Nov 17	15:11:00	10394	261	-24578	84	N	t-	1.4582	0.2356	-0.8700	149.4	-	-	20N	172E
0013 Apr 14	15:31:31	10390	261	-24573	51	P	-a	0.7708	1.4229	0.4641	280.3	140.9	-	8S	171E
0013 Oct 07	21:59:06	10385	261	-24567	56	P	-t	-0.8552	1.3167	0.2615	300.8	117.1	-	4N	71E
0014 Apr 04	04:41:09	10380	261	-24561	61	T+	pp	0.0340	2.8005	1.7909	344.5	222.9	102.4	5S	26W
0014 Sep 27	07:18:26	10375	261	-24555	66	T-	pp	-0.1061	2.6611	1.6655	332.3	215.8	97.7	1N	68W
0015 Mar 24	10:42:44	10370	261	-24549	71	P	t-	-0.7451	1.5233	0.4591	324.7	154.4	-	1S	116W
0015 Sep 16	22:16:47	10365	260	-24543	76	P	a-	0.5901	1.7552	0.7950	295.0	172.5	-	3S	68E
0016 Feb 11	18:16:48	10361	260	-24538	43	N	-t	1.4575	0.2243	-0.8563	143.4	-	-	16N	134E
0016 Mar 12	11:07:58	10361	260	-24537	81	N	t-	-1.4813	0.1820	-0.9013	131.2	-	-	3N	122W
0016 Aug 07	05:12:00	10357	260	-24532	48	N	-a	-1.3235	0.4210	-0.5619	173.9	-	-	19S	34W
0016 Sep 05	14:29:22	10356	260	-24531	86	N	a-	1.2902	0.4752	-0.4940	179.3	-	-	6S	175W
0017 Jan 30	22:56:32	10352	260	-24526	53	P	-h	0.6973	1.5948	0.5625	312.1	160.7	-	19N	64E
0017 Jul 27	15:07:47	10347	260	-24520	58	P	-h	-0.6227	1.7332	0.6978	327.3	178.9	-	21S	177E
0018 Jan 20	10:38:10	10342	260	-24514	63	T-	pp	-0.0320	2.7907	1.8076	326.3	213.6	99.0	21N	113W
0018 Jul 16	18:04:00	10337	260	-24508	68	T+	pp	0.1317	2.6521	1.5812	372.8	233.6	101.7	22S	133E
0019 Jan 10	02:13:01	10332	259	-24502	73	P	a-	-0.7028	1.5526	0.5842	284.8	152.8	-	22N	12E

0019 Jul 05	18:40:16	10328	259	-24496	78	P	t-	0.8824	1.2691	0.2093	306.1	108.7	-	23S	123E
0019 Dec 01	04:05:04	10324	259	-24491	45	N	-a	1.3824	0.3366	-0.6933	161.8	-	-	23N	20W
0019 Dec 30	17:02:31	10323	259	-24490	83	N	a-	-1.4003	0.2881	-0.7109	145.2	-	-	22N	149E
0020 May 25	14:32:02	10319	259	-24485	50	N	-h	-1.0447	0.9317	-0.0495	247.6	-	-	22S	177W
0020 Nov 19	09:47:16	10314	259	-24479	55	P	-h	0.7471	1.5302	0.4451	325.6	151.7	-	20N	107W
0021 May 15	05:47:27	10309	259	-24473	60	T-	-p	-0.2663	2.3413	1.3969	313.9	205.1	83.2	19S	46W
0021 Nov 08	09:27:30	10304	259	-24467	65	T+	pp	0.0743	2.7746	1.6694	378.9	234.6	103.5	16N	102W
0022 May 04	23:00:16	10299	259	-24461	70	T	a-	0.4717	1.9667	1.0179	304.9	189.1	20.0	15S	56E
0022 Oct 28	10:00:33	10295	258	-24455	75	P	h-	-0.6082	1.7785	0.7061	336.5	181.5	-	12N	110W
0023 Mar 26	02:29:14	10291	258	-24450	42	N	-h	-1.4336	0.2419	-0.7865	141.5	-	-	2S	7E
0023 Apr 24	13:29:03	10290	258	-24449	80	N	h-	1.2581	0.5460	-0.4468	199.2	-	-	11S	160W
0023 Sep 18	06:07:00	10286	258	-24444	47	N	-a	1.4423	0.2014	-0.7784	120.9	-	-	2S	51W
0023 Oct 17	17:25:01	10285	258	-24443	85	N	a-	-1.2618	0.5493	-0.4638	199.6	-	-	7N	139E
0024 Mar 14	06:25:33	10281	258	-24438	52	P	-t	-0.7406	1.5377	0.4610	329.7	156.0	-	3N	51W
0024 Sep 06	21:59:15	10276	258	-24432	57	P	-a	0.7338	1.4896	0.5332	280.2	147.2	-	6S	72E
0025 Mar 03	06:19:30	10271	258	-24426	62	T-	pp	-0.0165	2.8686	1.7875	374.1	234.6	105.5	8N	48W
0025 Aug 27	13:47:33	10266	258	-24420	67	T+	pp	0.0340	2.7843	1.8065	328.3	215.4	100.0	11S	164W
0026 Feb 20	09:41:34	10262	257	-24414	72	P	a-	0.7031	1.5880	0.5481	316.4	161.0	-	12N	98W
0026 Aug 17	00:58:33	10257	257	-24408	77	P	t-	-0.7323	1.5286	0.5003	310.8	154.6	-	15S	29E
0027 Jan 11	09:37:34	10253	257	-24403	44	N	-a	-1.3087	0.4444	-0.5311	173.1	-	-	21N	99W
0027 Feb 09	20:11:48	10252	257	-24402	82	N	a-	1.3646	0.3482	-0.6398	158.1	-	-	17N	105E
0027 Jul 07	13:40:22	10248	257	-24397	49	N	-t	1.3501	0.4170	-0.6548	194.1	-	-	22S	162W
0027 Aug 06	05:04:15	10247	257	-24396	87	N	t-	-1.5181	0.1082	-0.9627	100.9	-	-	19S	32W
0028 Jan 01	01:24:09	10243	257	-24391	54	P	-a	-0.6471	1.6574	0.6836	292.0	163.3	-	23N	24E
0028 Jun 25	15:03:03	10238	257	-24385	59	P	-t	0.5783	1.8207	0.7734	338.6	189.1	-	23S	176E
0028 Dec 20	15:07:23	10234	257	-24379	64	T+	pp	0.0256	2.8186	1.8033	338.3	218.4	100.3	24N	176E
0029 Jun 14	22:36:56	10229	256	-24373	69	T-	p-	-0.2153	2.4595	1.4663	336.7	216.6	91.1	24S	62E
0029 Dec 09	22:35:16	10224	256	-24367	74	P	t-	0.7501	1.5189	0.4451	320.4	150.0	-	24N	63E
0030 May 06	06:09:48	10220	256	-24362	41	Ne	-a	1.5347	0.0126	-0.9291	29.9	-	-	14S	51W
0030 Jun 04	12:54:44	10219	256	-24361	79	P	a-	-0.9518	1.0857	0.1369	252.6	79.8	-	23S	153W
0030 Nov 28	23:11:12	10214	256	-24355	84	N	t-	1.4523	0.2470	-0.8596	153.0	-	-	23N	52E
0031 Apr 25	23:02:34	10210	256	-24350	51	P	-a	0.8385	1.2988	0.3398	272.3	123.1	-	12S	56E
0031 Oct 19	06:03:39	10206	256	-24344	56	P	-t	-0.8696	1.2900	0.2352	297.7	111.2	-	9N	51W
0032 Apr 14	11:56:22	10201	256	-24338	61	T+	pp	0.0996	2.6806	1.6700	345.2	222.7	100.6	9S	137W
0032 Oct 07	15:38:04	10196	256	-24332	66	T-	pp	-0.1273	2.6222	1.6266	331.1	214.7	96.3	5N	165E
0033 Apr 03	17:37:38	10191	255	-24326	71	P	t-	-0.6815	1.6396	0.5761	332.9	170.1	-	5S	139E
0033 Sep 27	06:39:32	10186	255	-24320	76	P	a-	0.5625	1.8069	0.8444	297.3	176.2	-	1N	60W
0034 Feb 22	01:43:44	10182	255	-24315	43	N	-t	1.4917	0.1588	-0.9162	120.9	-	-	12N	21E
0034 Mar 23	18:02:27	10182	255	-24314	81	N	t-	-1.4217	0.2893	-0.7899	163.6	-	-	1S	133E
0034 Aug 18	12:49:49	10178	255	-24309	48	N	-a	-1.3790	0.3221	-0.6668	154.2	-	-	15S	149W

0034	Sep 16	22:38:32	10177	255	-24308	86	N	a-	1.2597	0.5337	-0.4405	189.5	-	-	2S	61E
0035	Feb 11	06:57:30	10173	255	-24303	53	P	-h	0.7206	1.5490	0.5229	307.8	155.4	-	15N	57W
0035	Aug 07	22:11:20	10168	255	-24297	58	P	-h	-0.6893	1.6142	0.5728	322.0	166.0	-	18S	71E
0036	Jan 31	19:06:54	10163	255	-24291	63	T-	pp	-0.0147	2.8201	1.8415	325.3	213.4	99.2	18N	120E
0036	Jul 27	00:39:32	10159	254	-24285	68	T+	pp	0.0552	2.7941	1.7198	374.7	235.4	105.5	20S	33E
0037	Jan 20	10:54:14	10154	254	-24279	73	P	a-	-0.6918	1.5718	0.6051	285.9	155.1	-	20N	118W
0037	Jul 16	01:15:46	10149	254	-24273	78	P	t-	0.8013	1.4177	0.3582	317.4	138.8	-	21S	24E
0037	Dec 11	12:39:42	10145	254	-24268	45	N	-a	1.3868	0.3300	-0.7027	160.9	-	-	25N	148W
0038	Jan 10	01:39:44	10144	254	-24267	83	N	a-	-1.3976	0.2936	-0.7062	146.9	-	-	21N	20E
0038	Jun 05	21:40:08	10140	254	-24262	50	N	-h	-1.1165	0.7982	-0.1796	231.5	-	-	24S	76E
0038	Jul 05	07:09:22	10139	254	-24261	88	Nb	h-	1.5080	0.0950	-0.9127	88.3	-	-	22S	65W
0038	Nov 30	17:57:42	10135	254	-24256	55	P	-h	0.7522	1.5221	0.4343	326.0	150.4	-	22N	131E
0039	May 26	13:13:09	10131	254	-24250	60	T	-p	-0.3391	2.2069	1.2643	310.4	200.3	71.0	21S	158W
0039	Nov 19	17:26:21	10126	253	-24244	65	T+	pp	0.0816	2.7617	1.6557	378.8	234.4	103.1	19N	138E
0040	May 15	06:26:28	10121	253	-24238	70	T	a-	0.4011	2.0965	1.1471	309.8	196.3	55.3	18S	56W
0040	Nov 07	18:09:52	10116	253	-24232	75	P	a-	-0.5982	1.7965	0.7249	336.5	182.8	-	16N	127E
0041	Apr 05	09:43:21	10112	253	-24227	42	N	-h	-1.4966	0.1265	-0.9024	103.7	-	-	7S	103W
0041	May 04	20:39:50	10112	253	-24226	80	N	h-	1.1925	0.6671	-0.3274	218.4	-	-	14S	91E
0041	Sep 28	14:24:22	10108	253	-24221	47	N	-a	1.4634	0.1629	-0.8175	108.9	-	-	3N	176W
0041	Oct 28	01:52:56	10107	253	-24220	85	N	a-	-1.2481	0.5741	-0.4381	203.0	-	-	12N	11E
0042	Mar 25	13:22:53	10103	253	-24215	52	P	-t	-0.8008	1.4264	0.3514	322.0	138.8	-	2S	157W
0042	Sep 18	06:14:48	10098	253	-24209	57	P	-a	0.7658	1.4325	0.4730	276.9	140.0	-	2S	53W
0043	Mar 14	13:26:33	10093	253	-24203	62	T-	pp	-0.0677	2.7721	1.6959	372.7	233.9	104.4	3N	157W
0043	Sep 07	21:44:27	10089	252	-24197	67	T+	pp	0.0743	2.7132	1.7298	329.4	215.4	99.0	7S	75E
0044	Mar 02	17:20:30	10084	252	-24191	72	P	a-	0.6625	1.6593	0.6258	319.1	169.4	-	8N	146E
0044	Aug 27	08:23:37	10079	252	-24185	77	P	t-	-0.6845	1.6196	0.5848	318.0	165.4	-	12S	84W
0045	Jan 21	18:14:38	10075	252	-24180	44	N	-a	-1.3193	0.4231	-0.5488	168.9	-	-	19N	132E
0045	Feb 20	04:21:38	10074	252	-24179	82	N	a-	1.3327	0.4038	-0.5787	168.8	-	-	13N	19W
0045	Jul 17	20:09:15	10070	252	-24174	49	N	-t	1.4287	0.2739	-0.8000	159.5	-	-	21S	100E
0045	Aug 16	11:56:52	10069	252	-24173	87	N	t-	-1.4589	0.2193	-0.8564	142.6	-	-	16S	136W
0046	Jan 11	10:08:14	10065	252	-24168	54	P	-a	-0.6562	1.6405	0.6673	291.4	162.0	-	22N	107W
0046	Jul 06	21:42:48	10061	252	-24162	59	P	-t	0.6570	1.6758	0.6298	329.8	174.4	-	23S	76E
0046	Dec 31	23:42:28	10056	251	-24156	64	T+	pp	0.0211	2.8277	1.8108	339.5	219.0	100.5	23N	48E
0047	Jun 26	05:42:06	10051	251	-24150	69	T-	pp	-0.1378	2.6004	1.6097	337.2	218.9	97.8	24S	44W
0047	Dec 21	06:51:09	10046	251	-24144	74	P	t-	0.7486	1.5226	0.4470	321.6	150.7	-	24N	61W
0048	Jun 14	20:16:34	10042	251	-24138	79	P	a-	-0.8756	1.2249	0.2775	263.6	111.3	-	24S	96E
0048	Dec 09	07:13:41	10037	251	-24132	84	N	t-	1.4480	0.2550	-0.8518	155.4	-	-	24N	68W
0049	May 06	06:27:43	10033	251	-24127	51	P	-a	0.9105	1.1671	0.2073	262.7	98.2	-	15S	56W
0049	Oct 29	14:16:20	10028	251	-24121	56	P	-h	-0.8787	1.2729	0.2190	295.4	107.2	-	12N	175W
0050	Apr 25	19:03:30	10023	251	-24115	61	T+	-p	0.1711	2.5501	1.5381	345.2	221.3	96.0	12S	115E

0050 Oct 19	00:05:58	10019	250	-24109	66	T-	-p	-0.1425	2.5943	1.5988	329.9	213.7	95.1	9N	37E
0051 Apr 15	00:25:40	10014	250	-24103	71	P	t-	-0.6124	1.7661	0.7031	340.8	184.4	-	9S	35E
0051 Oct 08	15:08:34	10009	250	-24097	76	P	a-	0.5400	1.8494	0.8847	299.1	179.0	-	6N	172E
0052 Mar 04	09:04:52	10005	250	-24092	43	N	-t	1.5309	0.0839	-0.9854	88.2	-	-	8N	90W
0052 Apr 03	00:51:37	10004	250	-24091	81	N	t-	-1.3570	0.4060	-0.6692	191.4	-	-	6S	29E
0052 Aug 28	20:33:40	10001	250	-24086	48	N	-a	-1.4291	0.2332	-0.7617	132.9	-	-	12S	94E
0052 Sep 27	06:54:06	10000	250	-24085	86	N	a-	1.2346	0.5821	-0.3970	197.6	-	-	2N	64W
0053 Feb 21	14:51:30	9996	250	-24080	53	P	-h	0.7504	1.4911	0.4714	302.6	148.3	-	12N	177W
0053 Aug 18	05:20:55	9991	250	-24074	58	P	-h	-0.7499	1.5060	0.4584	316.5	151.6	-	15S	38W
0054 Feb 11	03:28:04	9986	249	-24068	63	T+	pp	0.0095	2.8274	1.8535	324.2	213.2	99.2	15N	6W
0054 Aug 07	07:23:09	9982	249	-24062	68	T-	pp	-0.0145	2.8706	1.7927	375.6	235.8	106.2	17S	68W
0055 Jan 31	19:27:16	9977	249	-24056	73	P	a-	-0.6741	1.6034	0.6386	287.7	158.6	-	17N	114E
0055 Jul 27	08:00:57	9972	249	-24050	78	P	t-	0.7269	1.5543	0.4947	326.4	159.4	-	20S	78W
0055 Dec 22	21:11:11	9968	249	-24045	45	N	-a	1.3935	0.3189	-0.7161	158.9	-	-	25N	85E
0056 Jan 21	10:10:01	9967	249	-24044	83	N	a-	-1.3898	0.3081	-0.6922	150.7	-	-	19N	108W
0056 Jun 16	04:50:00	9963	249	-24039	50	N	-a	-1.1877	0.6661	-0.3090	213.5	-	-	25S	32W
0056 Jul 15	14:15:00	9963	249	-24038	88	N	a-	1.4327	0.2322	-0.7737	135.9	-	-	21S	172W
0056 Dec 11	02:07:50	9959	249	-24033	55	P	-t	0.7572	1.5140	0.4242	326.3	149.2	-	24N	9E
0057 Jun 05	20:37:11	9954	249	-24027	60	T	-a	-0.4139	2.0691	1.1275	306.1	194.1	51.5	23S	91E
0057 Nov 30	01:28:10	9949	248	-24021	65	T+	pp	0.0866	2.7526	1.6466	378.5	234.1	102.8	22N	18E
0058 May 26	13:48:20	9945	248	-24015	70	T	p-	0.3271	2.2329	1.2822	314.3	202.5	73.4	20S	167W
0058 Nov 19	02:25:43	9940	248	-24009	75	P	a-	-0.5924	1.8063	0.7363	336.0	183.4	-	19N	2E
0059 Apr 16	16:48:17	9936	248	-24004	42	Ne	-t	-1.5658	0.0001	-1.0297	2.6	-	-	11S	149E
0059 May 16	03:44:50	9935	248	-24003	80	N	t-	1.1230	0.7959	-0.2010	236.5	-	-	17S	16W
0059 Oct 09	22:49:53	9931	248	-23998	47	N	-a	1.4789	0.1348	-0.8462	99.1	-	-	7N	56E
0059 Nov 08	10:27:05	9930	248	-23997	85	N	a-	-1.2386	0.5909	-0.4202	204.9	-	-	15N	118W
0060 Apr 04	20:12:15	9926	248	-23992	52	P	-t	-0.8670	1.3042	0.2309	312.5	114.7	-	6S	99E
0060 Sep 28	14:37:45	9922	248	-23986	57	P	-a	0.7917	1.3864	0.4238	274.2	133.5	-	2N	180E
0061 Mar 24	20:25:39	9917	247	-23980	62	T-	pp	-0.1262	2.6623	1.5913	370.6	232.3	101.4	1S	97E
0061 Sep 18	05:48:37	9912	247	-23974	67	T+	-p	0.1080	2.6544	1.6652	330.4	215.1	97.5	3S	47W
0062 Mar 14	00:52:48	9907	247	-23968	72	P	a-	0.6152	1.7427	0.7159	322.1	178.0	-	4N	31E
0062 Sep 07	15:55:45	9903	247	-23962	77	P	t-	-0.6430	1.6991	0.6577	324.1	173.8	-	7S	162E
0063 Feb 02	02:45:49	9899	247	-23957	44	N	-a	-1.3351	0.3922	-0.5760	162.8	-	-	16N	4E
0063 Mar 03	12:25:05	9898	247	-23956	82	N	a-	1.2952	0.4700	-0.5071	180.3	-	-	9N	141W
0063 Jul 29	02:45:50	9894	247	-23951	49	N	-t	1.5007	0.1429	-0.9334	116.6	-	-	18S	0E
0063 Aug 27	18:58:01	9893	247	-23950	87	N	t-	-1.4063	0.3183	-0.7621	170.7	-	-	12S	117E
0064 Jan 22	18:47:23	9889	247	-23945	54	P	-a	-0.6691	1.6163	0.6440	290.4	159.9	-	19N	123E
0064 Jul 17	04:28:31	9885	247	-23939	59	P	-t	0.7314	1.5387	0.4937	320.3	157.4	-	21S	25W
0065 Jan 11	08:12:26	9880	246	-23933	64	T+	pp	0.0131	2.8430	1.8250	340.6	219.6	100.8	22N	79W
0065 Jul 06	12:51:57	9875	246	-23927	69	T-	pp	-0.0634	2.7358	1.7472	336.9	219.8	101.1	23S	152W

0065	Dec 31	15:01:21	9871	246	-23921	74	P	t-	0.7430	1.5334	0.4566	323.2	152.4	-	24N	178E
0066	Jun 26	03:41:42	9866	246	-23915	79	P	a-	-0.8017	1.3602	0.4135	273.1	133.0	-	24S	15W
0066	Dec 20	15:13:38	9861	246	-23909	84	N	t-	1.4420	0.2658	-0.8404	158.5	-	-	25N	173E
0067	May 17	13:48:48	9857	246	-23904	51	P	-a	0.9853	1.0306	0.0693	251.3	58.0	-	18S	168W
0067	Jun 15	20:57:11	9856	246	-23903	89	Nb	a-	-1.5191	0.0430	-0.9021	55.4	-	-	25S	85E
0067	Nov 09	22:34:15	9852	246	-23898	56	P	-h	-0.8843	1.2620	0.2095	293.5	104.7	-	16N	60E
0068	May 06	02:03:54	9848	245	-23892	61	T+	-p	0.2472	2.4115	1.3975	344.3	218.4	87.6	16S	9E
0068	Oct 29	08:40:56	9843	245	-23886	66	T-	-p	-0.1524	2.5759	1.5808	328.9	212.8	94.2	13N	93W
0069	Apr 25	07:03:17	9838	245	-23880	71	P	t-	-0.5353	1.9074	0.8446	348.6	197.6	-	13S	66W
0069	Oct 18	23:45:59	9834	245	-23874	76	P	a-	0.5245	1.8788	0.9121	300.4	180.7	-	10N	41E
0070	Apr 14	07:31:40	9829	245	-23868	81	N	t-	-1.2846	0.5370	-0.5343	217.0	-	-	10S	73W
0070	Sep 09	04:25:14	9825	245	-23863	48	N	-a	-1.4721	0.1574	-0.8437	110.4	-	-	8S	25W
0070	Oct 08	15:17:30	9824	245	-23862	86	N	a-	1.2166	0.6177	-0.3664	203.5	-	-	6N	168E
0071	Mar 04	22:37:56	9820	245	-23857	53	P	-h	0.7871	1.4204	0.4072	296.4	138.8	-	8N	65E
0071	Aug 29	12:37:53	9816	245	-23851	58	P	-h	-0.8035	1.4108	0.3569	311.2	136.3	-	11S	148W
0072	Feb 22	11:43:16	9811	244	-23845	63	T+	pp	0.0391	2.7706	1.8015	323.1	212.8	99.0	11N	131W
0072	Aug 17	14:12:40	9806	244	-23839	68	T-	pp	-0.0794	2.7535	1.6718	375.8	235.1	104.4	14S	172W
0073	Feb 11	03:54:44	9801	244	-23833	73	P	a-	-0.6520	1.6430	0.6802	289.9	162.7	-	14N	14W
0073	Aug 06	14:53:01	9797	244	-23827	78	P	t-	0.6570	1.6827	0.6227	333.7	174.7	-	17S	178E
0074	Jan 02	05:39:04	9793	244	-23822	45	N	-a	1.4023	0.3034	-0.7332	155.7	-	-	25N	42W
0074	Jan 31	18:33:07	9792	244	-23821	83	N	a-	-1.3769	0.3318	-0.6687	156.5	-	-	16N	126E
0074	Jun 27	12:03:34	9788	244	-23816	50	N	-a	-1.2566	0.5387	-0.4342	193.7	-	-	25S	140W
0074	Jul 26	21:28:16	9787	244	-23815	88	N	a-	1.3624	0.3606	-0.6441	166.7	-	-	19S	79E
0074	Dec 22	10:16:02	9783	244	-23810	55	P	-t	0.7634	1.5031	0.4121	326.2	147.6	-	24N	112W
0075	Jun 17	04:03:13	9779	243	-23804	60	P	-a	-0.4870	1.9346	0.9935	301.2	186.6	-	24S	21W
0075	Dec 11	09:29:47	9774	243	-23798	65	T+	pp	0.0919	2.7424	1.6372	378.1	233.9	102.5	23N	102W
0076	Jun 05	21:09:50	9769	243	-23792	70	T+	p-	0.2532	2.3695	1.4169	318.1	207.4	85.2	22S	82E
0076	Nov 29	10:43:57	9765	243	-23786	75	P	a-	-0.5881	1.8131	0.7454	335.2	183.8	-	21N	122W
0077	May 26	10:45:18	9760	243	-23780	80	N	t-	1.0505	0.9304	-0.0694	253.2	-	-	20S	122W
0077	Oct 20	07:23:11	9756	243	-23775	47	N	-a	1.4889	0.1167	-0.8646	92.2	-	-	11N	74W
0077	Nov 18	19:05:41	9755	243	-23774	85	N	a-	-1.2322	0.6018	-0.4075	206.0	-	-	18N	112E
0078	Apr 16	02:52:51	9751	243	-23769	52	P	-t	-0.9397	1.1700	0.0982	300.6	76.3	-	10S	3W
0078	Oct 09	23:08:26	9747	243	-23763	57	P	-a	0.8115	1.3518	0.3861	272.1	128.2	-	7N	50E
0079	Apr 05	03:17:24	9742	242	-23757	62	T-	pp	-0.1911	2.5407	1.4745	367.8	229.5	95.7	5S	8W
0079	Sep 29	14:00:55	9737	242	-23751	67	T+	-p	0.1345	2.6086	1.6138	331.4	214.8	96.0	2N	172W
0080	Mar 24	08:17:33	9733	242	-23745	72	P	a-	0.5608	1.8393	0.8189	325.2	186.4	-	0S	82W
0080	Sep 17	23:35:19	9728	242	-23739	77	P	t-	-0.6084	1.7659	0.7180	329.2	180.3	-	3S	46E
0081	Feb 12	11:09:49	9724	242	-23734	44	N	-a	-1.3571	0.3499	-0.6144	154.1	-	-	13N	123W
0081	Mar 13	20:20:26	9723	242	-23733	82	N	a-	1.2505	0.5493	-0.4224	192.7	-	-	5N	99E
0081	Aug 08	09:29:22	9719	242	-23728	49	Ne	-t	1.5666	0.0233	-1.0556	47.6	-	-	16S	101W

0081	Sep 07	02:08:00	9719	242	-23727	87	N	t-	-1.3608	0.4041	-0.6810	191.3	-	-	8S	8E
0082	Feb 02	03:18:22	9715	242	-23722	54	P	-a	-0.6885	1.5802	0.6090	288.8	156.6	-	17N	5W
0082	Jul 28	11:22:16	9710	241	-23716	59	P	-t	0.7997	1.4131	0.3687	310.5	138.2	-	19S	129W
0083	Jan 22	16:36:08	9705	241	-23710	64	T+	pp	0.0009	2.8657	1.8470	341.7	220.3	101.1	20N	155E
0083	Jul 17	20:07:26	9701	241	-23704	69	T+	pp	0.0071	2.8383	1.8513	335.9	219.6	101.8	22S	99E
0084	Jan 11	23:07:20	9696	241	-23698	74	P	t-	0.7347	1.5489	0.4715	325.1	154.9	-	23N	57E
0084	Jul 06	11:09:29	9691	241	-23692	79	P	a-	-0.7296	1.4923	0.5457	281.2	149.5	-	24S	127W
0084	Dec 30	23:11:44	9687	241	-23686	84	N	t-	1.4340	0.2797	-0.8252	162.3	-	-	25N	54E
0085	May 27	21:05:22	9683	241	-23681	51	N	-a	1.0631	0.8889	-0.0745	237.7	-	-	20S	83E
0085	Jun 26	04:21:03	9682	241	-23680	89	N	a-	-1.4502	0.1705	-0.7768	109.3	-	-	25S	26W
0085	Nov 20	06:58:14	9678	241	-23675	56	P	-h	-0.8857	1.2583	0.2078	292.2	104.0	-	19N	67W
0086	May 17	08:59:15	9673	240	-23669	61	T	-h	0.3264	2.2673	1.2510	342.4	213.8	73.7	19S	96W
0086	Nov 09	17:20:59	9669	240	-23663	66	T-	-p	-0.1587	2.5639	1.5697	327.9	212.2	93.5	17N	137E
0087	May 06	13:36:54	9664	240	-23657	71	P	t-	-0.4553	2.0543	0.9914	355.4	208.7	-	16S	166W
0087	Oct 30	08:28:45	9659	240	-23651	76	P	a-	0.5136	1.8997	0.9311	301.3	182.0	-	14N	91W
0088	Apr 24	14:07:28	9655	240	-23645	81	N	t-	-1.2077	0.6762	-0.3915	239.7	-	-	13S	173W
0088	Sep 19	12:23:10	9651	240	-23640	48	N	-a	-1.5094	0.0922	-0.9152	85.3	-	-	3S	146W
0088	Oct 18	23:46:33	9650	240	-23639	86	N	a-	1.2036	0.6439	-0.3448	207.9	-	-	11N	40E
0089	Mar 15	06:17:53	9646	240	-23634	53	P	-h	0.8301	1.3382	0.3315	289.0	126.3	-	3N	51W
0089	Sep 08	20:02:32	9641	240	-23628	58	P	-h	-0.8503	1.3282	0.2681	306.1	120.0	-	7S	99E
0090	Mar 04	19:49:22	9637	239	-23622	63	T+	pp	0.0771	2.6985	1.7341	321.8	212.2	98.0	7N	106E
0090	Aug 28	21:12:37	9632	239	-23616	68	T-	pp	-0.1358	2.6518	1.5664	375.5	233.6	100.9	11S	82E
0091	Feb 22	12:13:16	9627	239	-23610	73	P	a-	-0.6223	1.6964	0.7356	292.7	167.9	-	10N	139W
0091	Aug 17	21:55:13	9623	239	-23604	78	P	t-	0.5943	1.7980	0.7375	339.2	186.1	-	14S	72E
0092	Jan 13	14:00:29	9619	239	-23599	45	N	-a	1.4160	0.2790	-0.7588	150.1	-	-	23N	166W
0092	Feb 12	02:47:20	9618	239	-23598	83	N	a-	-1.3576	0.3673	-0.6332	164.6	-	-	13N	2E
0092	Jul 07	19:21:46	9614	239	-23593	50	N	-a	-1.3226	0.4168	-0.5546	171.8	-	-	24S	110E
0092	Aug 06	04:49:54	9613	239	-23592	88	N	a-	1.2974	0.4795	-0.5243	189.4	-	-	16S	32W
0093	Jan 01	18:19:38	9610	239	-23587	55	P	-t	0.7729	1.4860	0.3946	325.6	145.1	-	24N	127E
0093	Jun 27	11:29:54	9605	238	-23581	60	P	-a	-0.5600	1.8010	0.8595	295.7	177.6	-	24S	133W
0093	Dec 21	17:31:22	9600	238	-23575	65	T+	pp	0.0977	2.7308	1.6274	377.5	233.7	102.2	24N	138E
0094	Jun 17	04:30:09	9596	238	-23569	70	T+	pp	0.1787	2.5075	1.5524	321.2	211.1	93.2	23S	29W
0094	Dec 10	19:04:13	9591	238	-23563	75	P	a-	-0.5844	1.8184	0.7537	334.3	184.1	-	23N	113E
0095	Jun 06	17:43:06	9586	238	-23557	80	P	t-	0.9763	1.0683	0.0651	268.6	58.7	-	22S	133E
0095	Oct 31	16:03:47	9582	238	-23552	47	N	-a	1.4941	0.1073	-0.8742	88.3	-	-	15N	155E
0095	Nov 30	03:48:29	9582	238	-23551	85	N	a-	-1.2284	0.6077	-0.3994	206.2	-	-	20N	19W
0096	Apr 26	09:26:15	9578	238	-23546	52	Nx	-t	-1.0176	1.0264	-0.0442	286.0	-	-	14S	103W
0096	Oct 20	07:45:52	9573	238	-23540	57	P	-a	0.8257	1.3272	0.3585	270.7	124.1	-	11N	80W
0097	Apr 15	10:03:04	9568	237	-23534	62	T-	pp	-0.2619	2.4084	1.3471	364.0	225.3	86.1	9S	111W
0097	Oct 09	22:19:47	9564	237	-23528	67	T+	-p	0.1547	2.5743	1.5741	332.4	214.6	94.6	6N	62E

0098 Apr 04	15:36:30	9559	237	-23522	72	P	a-	0.5005	1.9468	0.9327	328.3	194.4	-	5S	167E
0098 Sep 29	07:22:18	9554	237	-23516	77	P	t-	-0.5806	1.8201	0.7659	333.5	185.2	-	1N	73W
0099 Feb 23	19:27:32	9551	237	-23511	44	N	-a	-1.3844	0.2978	-0.6625	142.6	-	-	9N	112E
0099 Mar 25	04:10:28	9550	237	-23510	82	N	a-	1.2010	0.6375	-0.3290	205.1	-	-	0N	21W
0099 Sep 18	09:25:16	9545	237	-23504	87	N	t-	-1.3210	0.4793	-0.6103	207.3	-	-	4S	102W
0100 Feb 13	11:42:48	9541	237	-23499	54	P	-a	-0.7131	1.5345	0.5645	286.6	152.1	-	13N	132W
0100 Aug 07	18:24:27	9537	236	-23493	59	P	-t	0.8617	1.2991	0.2550	300.7	116.6	-	16S	124E

2ND CENTURY CE

In the 2nd century CE the total number of lunar eclipses was 239 lunar eclipses: 84 penumbral lunar eclipses, 88 partial lunar eclipses, 67 total lunar eclipses (44 central total lunar eclipses, 23 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
	ECLIPSE														
0101 Feb 02	00:51:09	9532	236	-23487	64	T-	pp	-0.0180	2.8347	1.8155	342.8	220.9	101.3	17N	31E
0101 Jul 28	03:30:07	9527	236	-23481	69	T+	pp	0.0727	2.7176	1.7315	334.3	218.3	100.3	20S	12W
0102 Jan 22	07:04:50	9523	236	-23475	74	P	t-	0.7200	1.5759	0.4985	327.6	159.0	-	21N	63W
0102 Jul 17	18:43:17	9518	236	-23469	79	P	a-	-0.6621	1.6165	0.6693	287.9	162.1	-	22S	119E
0103 Jan 11	07:03:20	9513	236	-23463	84	N	t-	1.4208	0.3029	-0.7998	168.4	-	-	23N	63W
0103 Jun 08	04:21:12	9509	236	-23458	51	N	-a	1.1407	0.7479	-0.2182	222.0	-	-	22S	27W
0103 Jul 07	11:48:43	9509	236	-23457	89	N	a-	-1.3847	0.2923	-0.6580	141.9	-	-	25S	137W
0103 Dec 01	15:25:00	9505	236	-23452	56	P	-h	-0.8855	1.2573	0.2094	291.1	104.1	-	21N	167E
0104 May 27	15:49:11	9500	235	-23446	61	T	-h	0.4091	2.1170	1.0978	339.4	207.1	48.5	21S	161E
0104 Nov 20	02:05:57	9495	235	-23440	66	T-	-p	-0.1614	2.5582	1.5653	326.9	211.6	93.2	20N	5E
0105 May 16	20:03:36	9491	235	-23434	71	T	t-	-0.3702	2.2107	1.1474	361.5	218.2	60.6	19S	97E
0105 Nov 09	17:17:21	9486	235	-23428	76	P	a-	0.5074	1.9118	0.9418	301.9	182.6	-	17N	137E
0106 May 05	20:37:19	9482	235	-23422	81	N	t-	-1.1251	0.8261	-0.2383	260.4	-	-	17S	88E

0106 Sep 30	20:29:33	9478	235	-23417	48	N	-a	-1.5394	0.0403	-0.9732	56.9	-	-	1N	91E
0106 Oct 30	08:22:22	9477	235	-23416	86	N	a-	1.1966	0.6589	-0.3341	210.7	-	-	15N	90W
0107 Mar 26	13:51:32	9473	235	-23411	53	P	-h	0.8793	1.2448	0.2444	280.4	109.5	-	1S	166W
0107 Sep 20	03:34:02	9468	235	-23405	58	P	-h	-0.8907	1.2571	0.1909	301.4	102.7	-	3S	15W
0108 Mar 15	03:49:50	9464	234	-23399	63	T+	pp	0.1203	2.6169	1.6571	320.3	211.1	96.2	3N	15W
0108 Sep 08	04:20:38	9459	234	-23393	68	T-	pp	-0.1857	2.5621	1.4730	374.8	231.6	96.1	7S	26W
0109 Mar 04	20:23:58	9454	234	-23387	73	P	a-	-0.5865	1.7611	0.8023	296.0	173.6	-	6N	97E
0109 Aug 28	05:06:50	9450	234	-23381	78	P	t-	0.5385	1.9008	0.8396	343.5	194.5	-	10S	37W
0110 Jan 23	22:15:37	9446	234	-23376	45	N	-a	1.4340	0.2463	-0.7922	141.9	-	-	21N	70E
0110 Feb 22	10:53:09	9445	234	-23375	83	N	a-	-1.3323	0.4138	-0.5867	174.5	-	-	10N	120W
0110 Jul 19	02:46:23	9441	234	-23370	50	N	-a	-1.3840	0.3037	-0.6666	147.8	-	-	23S	1W
0110 Aug 17	12:20:50	9441	234	-23369	88	N	a-	1.2389	0.5864	-0.4169	206.6	-	-	13S	146W
0111 Jan 13	02:17:38	9437	234	-23364	55	P	-t	0.7865	1.4610	0.3697	324.4	141.2	-	23N	8E
0111 Jul 08	19:01:30	9432	234	-23358	60	P	-a	-0.6289	1.6749	0.7325	289.7	167.4	-	24S	114E
0112 Jan 02	01:30:03	9427	233	-23352	65	T+	pp	0.1063	2.7139	1.6128	376.8	233.3	101.8	23N	19E
0112 Jun 27	11:51:01	9423	233	-23346	70	T+	pp	0.1051	2.6441	1.6858	323.7	213.7	98.0	24S	139W
0112 Dec 21	03:24:07	9418	233	-23340	75	P	a-	-0.5795	1.8254	0.7645	333.4	184.5	-	23N	11W
0113 Jun 17	00:39:35	9413	233	-23334	80	P	t-	0.9013	1.2078	0.2006	282.5	101.5	-	23S	28E
0113 Nov 11	00:48:57	9410	233	-23329	47	N	-a	1.4962	0.1032	-0.8779	86.5	-	-	19N	23E
0113 Dec 10	12:31:14	9409	233	-23328	85	N	a-	-1.2240	0.6144	-0.3900	206.5	-	-	22N	149W
0114 May 07	15:53:42	9405	233	-23323	52	N	-t	-1.0998	0.8751	-0.1945	268.4	-	-	17S	159E
0114 Oct 31	16:29:08	9400	233	-23317	57	P	-a	0.8353	1.3108	0.3395	269.9	121.2	-	15N	148E
0115 Apr 26	16:43:58	9396	232	-23311	62	T	-t	-0.3370	2.2683	1.2115	359.3	219.4	70.5	13S	147E
0115 Oct 21	06:44:25	9391	232	-23305	67	T+	-p	0.1696	2.5496	1.5441	333.5	214.5	93.4	10N	65W
0116 Apr 14	22:50:05	9386	232	-23299	72	T	a-	0.4346	2.0646	1.0566	331.1	201.6	36.8	9S	56E
0116 Oct 09	15:16:50	9382	232	-23293	77	P	t-	-0.5596	1.8616	0.8014	337.0	188.8	-	6N	167E
0117 Mar 06	03:35:43	9378	232	-23288	44	N	-a	-1.4199	0.2309	-0.7257	126.1	-	-	5N	12W
0117 Apr 04	11:51:47	9377	232	-23287	82	N	a-	1.1437	0.7402	-0.2215	218.1	-	-	4S	138W
0117 Sep 28	16:52:47	9373	232	-23281	87	N	t-	-1.2894	0.5396	-0.5543	219.1	-	-	1N	144E
0118 Feb 23	19:58:00	9369	232	-23276	54	P	-a	-0.7452	1.4750	0.5062	283.4	145.6	-	9N	103E
0118 Aug 19	01:36:41	9364	232	-23270	59	P	-t	0.9164	1.1987	0.1547	291.2	91.8	-	13S	15E
0119 Feb 13	08:57:40	9359	231	-23264	64	T-	pp	-0.0432	2.7885	1.7691	343.8	221.4	101.3	14N	91W
0119 Aug 08	11:01:07	9355	231	-23258	69	T+	pp	0.1322	2.6081	1.6226	332.3	216.4	97.2	17S	126W
0120 Feb 02	14:55:48	9350	231	-23252	74	P	t-	0.7006	1.6113	0.5345	330.6	164.0	-	18N	179E
0120 Jul 28	02:20:58	9346	231	-23246	79	P	a-	-0.5976	1.7354	0.7871	293.7	172.3	-	20S	5E
0121 Jan 21	14:50:59	9341	231	-23240	84	N	t-	1.4042	0.3319	-0.7680	175.7	-	-	21N	180W
0121 Jun 18	11:35:29	9337	231	-23235	51	N	-a	1.2185	0.6068	-0.3626	203.5	-	-	22S	136W
0121 Jul 17	19:18:51	9336	231	-23234	89	N	a-	-1.3215	0.4098	-0.5439	166.6	-	-	23S	110E
0121 Dec 11	23:53:25	9332	231	-23229	56	P	-h	-0.8848	1.2570	0.2123	290.0	104.4	-	22N	40E
0122 Jun 07	22:37:15	9328	231	-23223	61	P	-t	0.4922	1.9663	0.9437	335.3	198.3	-	22S	58E

0122 Dec 01	10:53:21	9323	230	-23217	66	T-	-p	-0.1625	2.5554	1.5642	326.1	211.2	93.0	22N	126W
0123 May 28	02:28:46	9319	230	-23211	71	T	pp	-0.2838	2.3695	1.3054	366.5	225.6	82.7	21S	0W
0123 Nov 21	02:08:08	9314	230	-23205	76	P	a-	0.5032	1.9202	0.9490	302.4	183.1	-	20N	4E
0124 May 16	03:05:56	9309	230	-23199	81	N	t-	-1.0406	0.9795	-0.0818	278.4	-	-	20S	10W
0124 Nov 09	17:01:39	9305	230	-23193	86	N	a-	1.1930	0.6675	-0.3294	212.5	-	-	18N	140E
0125 Apr 05	21:18:14	9301	230	-23188	53	P	-h	0.9349	1.1397	0.1453	270.2	85.3	-	5S	80E
0125 Sep 30	11:14:04	9296	230	-23182	58	P	-h	-0.9233	1.2002	0.1282	297.6	85.1	-	2N	132W
0126 Mar 26	11:42:03	9292	229	-23176	63	T+	-p	0.1709	2.5221	1.5665	318.4	209.4	92.9	1S	135W
0126 Sep 19	11:38:54	9287	229	-23170	68	T-	pp	-0.2271	2.4879	1.3954	373.9	229.4	90.7	2S	137W
0127 Mar 16	04:25:32	9282	229	-23164	73	P	a-	-0.5433	1.8395	0.8823	299.8	179.8	-	2N	25W
0127 Sep 08	12:30:04	9278	229	-23158	78	P	t-	0.4914	1.9876	0.9258	346.4	200.6	-	6S	150W
0128 Feb 04	06:21:56	9274	229	-23153	45	N	-a	1.4584	0.2017	-0.8372	129.4	-	-	18N	52W
0128 Mar 04	18:48:40	9273	229	-23152	83	N	a-	-1.2994	0.4740	-0.5264	186.2	-	-	5N	119E
0128 Jul 29	10:16:41	9269	229	-23147	50	N	-a	-1.4415	0.1979	-0.7719	120.1	-	-	21S	114W
0128 Aug 27	20:00:50	9269	229	-23146	88	N	a-	1.1868	0.6820	-0.3211	220.0	-	-	10S	98E
0129 Jan 23	10:08:36	9265	229	-23141	55	P	-t	0.8053	1.4259	0.3355	322.2	135.4	-	20N	109W
0129 Jul 19	02:36:18	9260	229	-23135	60	P	-a	-0.6955	1.5536	0.6096	283.2	155.7	-	22S	0E
0130 Jan 12	09:23:57	9255	228	-23129	65	T+	pp	0.1192	2.6885	1.5907	375.8	232.8	101.0	22N	99W
0130 Jul 08	19:13:48	9251	228	-23123	70	T+	pp	0.0336	2.7773	1.8152	325.5	215.1	100.3	23S	110E
0131 Jan 01	11:43:12	9246	228	-23117	75	P	a-	-0.5728	1.8355	0.7789	332.6	185.3	-	23N	135W
0131 Jun 28	07:35:09	9242	228	-23111	80	P	t-	0.8264	1.3476	0.3359	295.1	129.2	-	23S	76W
0131 Nov 22	09:38:04	9238	228	-23106	47	N	-a	1.4958	0.1035	-0.8770	86.5	-	-	22N	109W
0131 Dec 21	21:14:37	9237	228	-23105	85	N	a-	-1.2196	0.6208	-0.3803	206.8	-	-	22N	80E
0132 May 17	22:17:07	9233	228	-23100	52	N	-t	-1.1847	0.7191	-0.3499	247.3	-	-	20S	62E
0132 Nov 11	01:17:09	9228	228	-23094	57	P	-a	0.8409	1.3018	0.3282	269.6	119.4	-	18N	16E
0133 May 06	23:20:25	9224	228	-23088	62	T	-t	-0.4163	2.1207	1.0681	353.4	211.5	41.9	17S	47E
0133 Oct 31	15:14:45	9219	227	-23082	67	T+	-p	0.1790	2.5348	1.5245	334.7	214.6	92.6	14N	166E
0134 Apr 26	06:00:23	9215	227	-23076	72	T	a-	0.3649	2.1897	1.1872	333.4	207.7	64.1	13S	53W
0134 Oct 20	23:16:36	9210	227	-23070	77	P	t-	-0.5437	1.8935	0.8279	339.9	191.5	-	10N	46E
0135 Mar 17	11:37:58	9206	227	-23065	44	N	-a	-1.4603	0.1548	-0.7981	103.8	-	-	1N	134W
0135 Apr 15	19:29:43	9205	227	-23064	82	N	a-	1.0830	0.8493	-0.1081	230.3	-	-	8S	106E
0135 Oct 10	00:27:54	9201	227	-23058	87	N	t-	-1.2636	0.5887	-0.5090	228.1	-	-	5N	29E
0136 Mar 06	04:05:27	9197	227	-23053	54	P	-a	-0.7832	1.4046	0.4369	279.3	137.0	-	5N	20W
0136 Aug 29	08:58:18	9192	227	-23047	59	P	-t	0.9641	1.1112	0.0671	282.2	61.1	-	9S	97W
0137 Feb 23	16:54:24	9188	227	-23041	64	T-	pp	-0.0756	2.7290	1.7095	344.6	221.7	100.7	10N	149E
0137 Aug 18	18:41:13	9183	226	-23035	69	T+	pp	0.1846	2.5118	1.5265	330.2	213.9	92.9	14S	118E
0138 Feb 12	22:35:17	9178	226	-23029	74	P	t-	0.6726	1.6623	0.5863	334.4	170.7	-	14N	64E
0138 Aug 08	10:07:08	9174	226	-23023	79	P	a-	-0.5401	1.8416	0.8918	298.3	179.9	-	17S	113W
0139 Feb 01	22:30:11	9169	226	-23017	84	N	t-	1.3810	0.3727	-0.7237	185.2	-	-	19N	65E
0139 Jun 29	18:50:46	9165	226	-23012	51	N	-a	1.2945	0.4694	-0.5039	182.1	-	-	22S	115E

0139	Jul 29	02:53:47	9165	226	-23011	89	N	a-	-1.2628	0.5197	-0.4381	186.1	-	-	21S	4W
0139	Dec 23	08:20:57	9161	226	-23006	56	P	-a	-0.8854	1.2540	0.2133	288.6	104.4	-	23N	86W
0140	Jun 18	05:23:24	9156	226	-23000	61	P	-t	0.5755	1.8154	0.7888	330.0	187.0	-	23S	44W
0140	Dec 11	19:41:56	9152	226	-22994	66	T-	-p	-0.1631	2.5530	1.5641	325.2	210.8	92.8	23N	102E
0141	Jun 07	08:50:03	9147	225	-22988	71	T-	pp	-0.1946	2.5339	1.4685	370.3	231.1	96.1	23S	96W
0141	Dec 01	11:02:09	9142	225	-22982	76	P	a-	0.5017	1.9231	0.9513	302.6	183.3	-	23N	129W
0142	May 27	09:32:30	9138	225	-22976	81	P	t-	-0.9535	1.1381	0.0794	294.4	68.3	-	22S	107W
0142	Nov 21	01:44:19	9133	225	-22970	86	N	a-	1.1927	0.6698	-0.3306	213.5	-	-	21N	9E
0143	Apr 17	04:40:39	9129	225	-22965	53	P	-h	0.9948	1.0270	0.0383	258.4	44.3	-	9S	32W
0143	Oct 11	19:01:36	9125	225	-22959	58	P	-h	-0.9490	1.1559	0.0784	294.5	67.2	-	6N	110E
0144	Apr 05	19:28:11	9120	225	-22953	63	T+	-p	0.2269	2.4172	1.4656	316.2	207.0	87.7	6S	107E
0144	Sep 29	19:05:45	9116	225	-22947	68	T-	pp	-0.2616	2.4262	1.3305	372.9	227.1	85.0	2N	109E
0145	Mar 26	12:19:48	9111	224	-22941	73	P	a-	-0.4944	1.9285	0.9728	303.7	186.1	-	2S	146W
0145	Sep 18	20:03:14	9106	224	-22935	78	P	t-	0.4513	2.0615	0.9991	348.5	205.0	-	2S	96E
0146	Feb 14	14:19:06	9102	224	-22930	45	N	-a	1.4896	0.1446	-0.8944	110.5	-	-	15N	172W
0146	Mar 16	02:34:55	9102	224	-22929	83	N	a-	-1.2597	0.5470	-0.4535	199.3	-	-	1N	1E
0146	Aug 09	17:55:31	9098	224	-22924	50	N	-a	-1.4929	0.1035	-0.8663	87.4	-	-	18S	130E
0146	Sep 08	03:51:02	9097	224	-22923	88	N	a-	1.1419	0.7642	-0.2388	230.2	-	-	5S	21W
0147	Feb 03	17:52:00	9093	224	-22918	55	P	-t	0.8302	1.3795	0.2905	318.9	127.1	-	18N	135E
0147	Jul 30	10:16:38	9089	224	-22912	60	P	-a	-0.7576	1.4407	0.4946	276.6	142.7	-	20S	115W
0148	Jan 23	17:12:26	9084	224	-22906	65	T+	pp	0.1371	2.6539	1.5598	374.5	232.1	99.8	20N	144E
0148	Jul 19	02:39:57	9079	223	-22900	70	T-	pp	-0.0348	2.7772	1.8107	326.8	215.5	100.3	21S	2W
0149	Jan 11	19:57:24	9075	223	-22894	75	P	a-	-0.5615	1.8538	0.8022	332.0	186.8	-	21N	101E
0149	Jul 08	14:32:27	9070	223	-22888	80	P	t-	0.7535	1.4839	0.4672	306.3	149.9	-	22S	180E
0149	Dec 02	18:28:56	9066	223	-22883	47	N	-a	1.4948	0.1048	-0.8745	86.8	-	-	24N	119E
0150	Jan 01	05:54:48	9066	223	-22882	85	N	a-	-1.2120	0.6329	-0.3645	207.9	-	-	22N	49W
0150	May 29	04:38:29	9062	223	-22877	52	N	-t	-1.2706	0.5614	-0.5074	221.9	-	-	23S	34W
0150	Jun 27	19:18:21	9061	223	-22876	90	Nb	t-	1.5620	0.0230	-1.0384	46.7	-	-	22S	108E
0150	Nov 22	10:07:17	9057	223	-22871	57	P	-a	0.8449	1.2954	0.3200	269.5	118.2	-	21N	117W
0151	May 18	05:55:31	9053	223	-22865	62	P	-t	-0.4975	1.9698	0.9210	346.3	201.4	-	20S	53W
0151	Nov 11	23:49:22	9048	223	-22859	67	T+	-p	0.1846	2.5267	1.5120	335.9	214.8	92.1	18N	37E
0152	May 06	13:06:10	9043	222	-22853	72	T	a-	0.2902	2.3241	1.3267	335.2	212.8	80.5	16S	160W
0152	Oct 31	07:23:07	9039	222	-22847	77	P	t-	-0.5337	1.9143	0.8437	342.2	193.3	-	14N	76W
0153	Mar 27	19:31:27	9035	222	-22842	44	Ne	-a	-1.5084	0.0650	-0.8846	67.8	-	-	4S	106E
0153	Apr 26	03:01:04	9034	222	-22841	82	P	a-	1.0160	0.9703	0.0169	242.4	28.5	-	12S	8W
0153	Oct 20	08:12:00	9030	222	-22835	87	N	t-	-1.2449	0.6247	-0.4762	234.5	-	-	9N	88W
0154	Mar 17	12:02:57	9026	222	-22830	54	P	-a	-0.8293	1.3197	0.3528	273.9	125.0	-	1N	141W
0154	Sep 09	16:31:24	9021	222	-22824	59	Nx	-t	1.0034	1.0393	-0.0049	274.2	-	-	5S	149E
0155	Mar 07	00:42:16	9016	222	-22818	64	T-	pp	-0.1146	2.6575	1.6379	345.2	221.6	99.2	6N	30E
0155	Aug 30	02:29:28	9012	222	-22812	69	T+	-p	0.2311	2.4265	1.4411	327.9	211.2	87.7	10S	0E

0156 Feb 24	06:07:04	9007	221	-22806	74	P	t-	0.6387	1.7239	0.6490	338.6	178.2	-	11N	50W
0156 Aug 18	17:59:14	9003	221	-22800	79	P	a-	-0.4875	1.9392	0.9874	302.0	186.0	-	14S	128E
0157 Feb 12	06:01:49	8998	221	-22794	84	N	t-	1.3512	0.4255	-0.6671	196.6	-	-	15N	48W
0157 Jul 10	02:07:16	8994	221	-22789	51	N	-a	1.3686	0.3356	-0.6423	156.6	-	-	21S	6E
0157 Aug 08	10:33:48	8994	221	-22788	89	N	a-	-1.2084	0.6217	-0.3405	202.1	-	-	18S	120W
0158 Jan 02	16:47:13	8990	221	-22783	56	P	-a	-0.8879	1.2472	0.2109	286.9	103.5	-	22N	148E
0158 Jun 29	12:10:44	8985	221	-22777	61	P	-t	0.6570	1.6681	0.6371	323.7	172.9	-	23S	145W
0158 Dec 23	04:28:53	8980	221	-22771	66	T-	-p	-0.1658	2.5469	1.5607	324.2	210.4	92.6	24N	29W
0159 Jun 18	15:13:09	8976	221	-22765	71	T-	pp	-0.1070	2.6954	1.6284	372.9	234.5	103.5	24S	168E
0159 Dec 12	19:55:49	8971	220	-22759	76	P	a-	0.5001	1.9263	0.9542	302.9	183.5	-	24N	98E
0160 Jun 06	15:59:10	8967	220	-22753	81	P	t-	-0.8653	1.2987	0.2423	308.2	116.3	-	23S	156E
0160 Dec 01	10:28:02	8962	220	-22747	86	N	a-	1.1939	0.6691	-0.3342	214.1	-	-	23N	122W
0161 Apr 27	11:58:19	8958	220	-22742	53	N	-h	1.0591	0.9063	-0.0771	244.8	-	-	13S	143W
0161 Oct 22	02:55:31	8954	220	-22736	58	P	-t	-0.9689	1.1217	0.0393	292.2	47.9	-	10N	9W
0162 Apr 17	03:07:44	8949	220	-22730	63	T	-p	0.2890	2.3016	1.3534	313.3	203.5	79.6	10S	10W
0162 Oct 11	02:42:21	8944	220	-22724	68	T	-p	-0.2882	2.3788	1.2804	372.0	225.1	79.7	6N	6W
0163 Apr 06	20:06:04	8940	220	-22718	73	T	a-	-0.4389	2.0298	1.0750	307.7	192.3	40.2	6S	96E
0163 Sep 30	03:46:27	8935	219	-22712	78	T	h-	0.4185	2.1217	1.0589	349.8	208.1	38.5	3N	22W
0164 Feb 25	22:06:06	8931	219	-22707	45	N	-h	1.5280	0.0740	-0.9650	79.8	-	-	11N	70E
0164 Mar 26	10:11:15	8931	219	-22706	83	N	h-	-1.2127	0.6333	-0.3676	213.4	-	-	3S	115W
0164 Aug 20	01:42:08	8927	219	-22701	50	Ne	-a	-1.5390	0.0192	-0.9509	37.9	-	-	15S	13E
0164 Sep 18	11:51:10	8926	219	-22700	88	N	a-	1.1043	0.8334	-0.1697	238.0	-	-	1S	143W
0165 Feb 14	01:24:44	8922	219	-22695	55	P	-t	0.8632	1.3182	0.2310	314.2	114.5	-	14N	21E
0165 Aug 09	18:02:59	8918	219	-22689	60	P	-a	-0.8147	1.3372	0.3886	269.9	128.6	-	17S	128E
0166 Feb 03	00:53:58	8913	219	-22683	65	T+	pp	0.1610	2.6077	1.5181	372.9	231.0	97.9	17N	28E
0166 Jul 30	10:10:19	8908	219	-22677	70	T-	pp	-0.0988	2.6621	1.6908	327.5	215.0	98.4	19S	115W
0167 Jan 23	04:07:39	8904	219	-22671	75	P	a-	-0.5460	1.8794	0.8333	331.8	188.8	-	19N	21W
0167 Jul 19	21:32:15	8899	218	-22665	80	P	t-	0.6833	1.6154	0.5932	316.1	166.1	-	21S	74E
0167 Dec 14	03:21:16	8895	218	-22660	47	N	-a	1.4932	0.1069	-0.8709	87.5	-	-	25N	14W
0168 Jan 12	14:32:57	8895	218	-22659	85	N	a-	-1.2024	0.6484	-0.3448	209.4	-	-	21N	178W
0168 Jun 08	10:57:29	8891	218	-22654	52	N	-t	-1.3577	0.4016	-0.6673	190.6	-	-	24S	129W
0168 Jul 08	01:47:14	8890	218	-22653	90	N	t-	1.4835	0.1687	-0.8960	125.2	-	-	22S	10E
0168 Dec 02	19:00:04	8886	218	-22648	57	P	-a	0.8466	1.2930	0.3161	269.8	117.6	-	23N	110E
0169 May 28	12:29:40	8882	218	-22642	62	P	-t	-0.5802	1.8162	0.7709	338.0	188.8	-	22S	152W
0169 Nov 22	08:26:13	8877	218	-22636	67	T+	-p	0.1876	2.5231	1.5046	337.2	215.1	91.9	20N	92W
0170 May 17	20:11:39	8872	218	-22630	72	T+	p-	0.2143	2.4611	1.4684	336.3	216.5	91.2	19S	92E
0170 Nov 11	15:33:08	8868	218	-22624	77	P	t-	-0.5271	1.9287	0.8537	344.2	194.5	-	17N	161E
0171 May 07	10:30:34	8863	217	-22618	82	P	a-	0.9471	1.0950	0.1449	253.4	82.0	-	15S	122W
0171 Oct 31	16:01:06	8859	217	-22612	87	N	t-	-1.2301	0.6532	-0.4503	239.4	-	-	13N	153E
0172 Mar 27	19:53:10	8855	217	-22607	54	P	-a	-0.8808	1.2249	0.2586	267.3	108.7	-	3S	100E

0172 Sep 20	00:14:34	8850	217	-22601	59	N	-t	1.0350	0.9812	-0.0631	267.2	-	-	1S	31E
0173 Mar 17	08:18:21	8846	217	-22595	64	T-	-p	-0.1623	2.5701	1.5503	345.5	220.9	96.2	2N	85W
0173 Sep 09	10:28:09	8841	217	-22589	69	T+	-p	0.2695	2.3563	1.3706	325.7	208.6	82.3	6S	121W
0174 Mar 06	13:26:42	8836	217	-22583	74	P	t-	0.5956	1.8022	0.7286	343.4	186.6	-	7N	161W
0174 Aug 30	02:00:12	8832	217	-22577	79	T	a-	-0.4422	2.0234	1.0693	305.0	190.5	38.4	10S	7E
0175 Feb 23	13:23:50	8827	216	-22571	84	N	t-	1.3135	0.4926	-0.5958	209.9	-	-	11N	160W
0175 Jul 21	09:27:35	8823	216	-22566	51	N	-a	1.4385	0.2099	-0.7730	125.8	-	-	20S	105W
0175 Aug 19	18:20:44	8823	216	-22565	89	N	a-	-1.1602	0.7125	-0.2545	215.1	-	-	15S	122E
0176 Jan 14	01:09:26	8819	216	-22560	56	P	-a	-0.8942	1.2329	0.2018	284.5	101.1	-	21N	23E
0176 Jul 09	18:57:41	8814	216	-22554	61	P	-t	0.7375	1.5229	0.4870	316.1	155.3	-	22S	113E
0177 Jan 02	13:14:09	8810	216	-22548	66	T-	-p	-0.1700	2.5375	1.5545	323.2	210.0	92.2	23N	160W
0177 Jun 28	21:36:11	8805	216	-22542	71	T-	pp	-0.0200	2.8561	1.7872	374.3	235.9	106.5	24S	72E
0177 Dec 23	04:48:16	8800	216	-22536	76	P	a-	0.4979	1.9301	0.9583	303.2	183.9	-	24N	35W
0178 Jun 17	22:27:32	8796	216	-22530	81	P	t-	-0.7778	1.4584	0.4037	319.8	146.3	-	24S	59E
0178 Dec 12	19:12:18	8791	215	-22524	86	N	a-	1.1966	0.6652	-0.3405	214.2	-	-	24N	108E
0179 May 08	19:13:18	8787	215	-22519	53	N	-h	1.1263	0.7806	-0.1981	229.1	-	-	16S	107E
0179 Jun 07	04:36:04	8787	215	-22518	91	N	h-	-1.4924	0.1219	-0.8824	99.7	-	-	24S	34W
0179 Nov 02	10:54:47	8783	215	-22513	58	P	-t	-0.9838	1.0967	0.0098	290.6	24.0	-	14N	130W
0180 Apr 27	10:42:59	8778	215	-22507	63	T	-p	0.3548	2.1795	1.2342	309.8	199.0	67.4	13S	125W
0180 Oct 21	10:26:47	8774	215	-22501	68	T	-p	-0.3086	2.3425	1.2418	371.2	223.4	75.0	11N	123W
0181 Apr 17	03:44:48	8769	215	-22495	73	T	p-	-0.3776	2.1420	1.1878	311.7	198.2	61.6	10S	20W
0181 Oct 10	11:39:30	8765	215	-22489	78	T	a-	0.3930	2.1685	1.1056	350.4	210.2	50.6	7N	141W
0182 Apr 06	17:39:24	8760	215	-22483	83	N	h-	-1.1598	0.7306	-0.2709	227.8	-	-	7S	132E
0182 Sep 29	19:59:53	8755	214	-22477	88	N	a-	1.0730	0.8908	-0.1122	243.9	-	-	3N	94E
0183 Feb 25	08:48:48	8751	214	-22472	55	P	-t	0.9026	1.2448	0.1596	308.1	96.3	-	10N	91W
0183 Aug 21	01:56:34	8747	214	-22466	60	P	-a	-0.8657	1.2452	0.2936	263.4	113.3	-	14S	8E
0184 Feb 14	08:27:47	8742	214	-22460	65	T+	pp	0.1917	2.5490	1.4642	371.0	229.5	94.8	14N	86W
0184 Aug 09	17:45:22	8738	214	-22454	70	T-	-p	-0.1583	2.5557	1.5791	327.9	213.9	94.9	16S	131E
0185 Feb 02	12:11:16	8733	214	-22448	75	P	a-	-0.5241	1.9165	0.8764	331.9	191.6	-	16N	142W
0185 Jul 30	04:36:44	8728	214	-22442	80	P	t-	0.6176	1.7390	0.7109	324.6	178.9	-	19S	32W
0185 Dec 24	12:10:52	8725	214	-22437	47	N	-a	1.4945	0.1035	-0.8722	86.0	-	-	25N	145W
0186 Jan 22	23:04:08	8724	214	-22436	85	N	a-	-1.1865	0.6752	-0.3133	212.4	-	-	19N	54E
0186 Jun 19	17:18:24	8720	213	-22431	52	N	-t	-1.4429	0.2456	-0.8239	151.2	-	-	25S	136E
0186 Jul 19	08:21:49	8719	213	-22430	90	N	t-	1.4090	0.3071	-0.7612	167.2	-	-	20S	89W
0186 Dec 14	03:52:10	8715	213	-22425	57	P	-a	0.8492	1.2886	0.3107	269.8	116.9	-	24N	22W
0187 Jun 08	19:04:35	8711	213	-22419	62	P	-t	-0.6629	1.6630	0.6206	328.5	173.2	-	23S	109E
0187 Dec 03	17:04:17	8706	213	-22413	67	T+	-p	0.1892	2.5218	1.5001	338.4	215.6	91.8	22N	139E
0188 May 28	03:15:36	8702	213	-22407	72	T+	pp	0.1358	2.6030	1.6144	336.7	218.8	98.0	21S	14W
0188 Nov 21	23:46:47	8697	213	-22401	77	P	t-	-0.5241	1.9359	0.8573	345.7	195.3	-	20N	37E
0189 May 17	17:55:14	8693	213	-22395	82	P	a-	0.8736	1.2285	0.2811	263.8	111.9	-	18S	126E

0189 Nov 10	23:57:31	8688	213	-22389	87	N	t-	-1.2210	0.6708	-0.4347	242.3	-	-	16N	34E
0190 Apr 08	03:34:41	8684	212	-22384	54	P	-a	-0.9390	1.1180	0.1519	259.1	84.8	-	8S	17W
0190 Oct 01	08:07:45	8680	212	-22378	59	N	-h	1.0594	0.9365	-0.1078	261.5	-	-	4N	88W
0191 Mar 28	15:45:52	8675	212	-22372	64	T-	-p	-0.2163	2.4713	1.4511	345.2	219.3	91.1	3S	161E
0191 Sep 20	18:35:32	8670	212	-22366	69	T	-p	0.3013	2.2981	1.3120	323.6	206.0	76.9	1S	116E
0192 Mar 16	20:37:19	8666	212	-22360	74	P	t-	0.5456	1.8933	0.8211	348.4	195.3	-	2N	89E
0192 Sep 09	10:07:52	8661	212	-22354	79	T	p-	-0.4025	2.0976	1.1408	307.5	194.0	53.6	6S	117W
0193 Mar 05	20:38:07	8657	212	-22348	84	N	t-	1.2690	0.5720	-0.5119	224.0	-	-	7N	90E
0193 Jul 31	16:51:34	8653	212	-22343	51	N	-a	1.5044	0.0919	-0.8966	84.5	-	-	17S	144E
0193 Aug 30	02:13:58	8652	212	-22342	89	N	a-	-1.1178	0.7930	-0.1793	225.8	-	-	11S	3E
0194 Jan 24	09:26:39	8648	211	-22337	56	P	-a	-0.9053	1.2098	0.1842	281.3	96.5	-	19N	102W
0194 Jul 21	01:49:10	8643	211	-22331	61	P	-t	0.8130	1.3869	0.3459	307.8	134.2	-	20S	9E
0195 Jan 13	21:55:33	8639	211	-22325	66	T-	-p	-0.1776	2.5217	1.5422	322.1	209.5	91.6	21N	70E
0195 Jul 10	04:02:46	8634	211	-22319	71	T+	pp	0.0640	2.7765	1.7053	374.6	235.6	105.5	23S	24W
0196 Jan 03	13:37:24	8630	211	-22313	76	P	a-	0.4932	1.9385	0.9673	303.6	184.6	-	24N	166W
0196 Jun 28	04:59:44	8625	211	-22307	81	P	t-	-0.6926	1.6140	0.5607	329.5	167.8	-	24S	39W
0196 Dec 23	03:53:20	8621	211	-22301	86	N	a-	1.1973	0.6650	-0.3425	214.8	-	-	25N	22W
0197 May 19	02:25:52	8617	211	-22296	53	N	-a	1.1962	0.6503	-0.3242	211.0	-	-	18S	2W
0197 Jun 17	11:34:03	8616	211	-22295	91	N	a-	-1.4107	0.2701	-0.7310	145.8	-	-	25S	139W
0197 Nov 12	18:58:24	8612	210	-22290	58	Nx	-t	-0.9946	1.0787	-0.0119	289.6	-	-	17N	108E
0198 May 08	18:14:15	8608	210	-22284	63	T	-a	0.4243	2.0507	1.1077	305.6	193.0	47.6	16S	121E
0198 Nov 01	18:17:33	8603	210	-22278	68	T	-p	-0.3240	2.3151	1.2129	370.4	222.0	71.0	14N	118E
0199 Apr 28	11:17:36	8598	210	-22272	73	T	p-	-0.3117	2.2630	1.3088	315.5	203.5	76.1	14S	135W
0199 Oct 21	19:41:48	8594	210	-22266	78	T	a-	0.3745	2.2024	1.1397	350.5	211.4	57.4	11N	97E
0200 Apr 17	00:57:20	8589	210	-22260	83	N	h-	-1.0995	0.8418	-0.1607	242.6	-	-	11S	21E
0200 Oct 10	04:18:23	8585	210	-22254	88	N	a-	1.0490	0.9346	-0.0683	247.9	-	-	7N	32W

3RD CENTURY CE

In the 3rd century CE the total number of lunar eclipses was 228 lunar eclipses: 83 penumbral lunar eclipses, 63 partial lunar eclipses, 82 total lunar eclipses (29 central total lunar eclipses, 53 non-central total lunar eclipses).

	CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
	DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
		GREATEST		S								m	m	m	°	°
		ECLIPSE														
0201	Mar 07	16:01:49	8581	210	-22249	55	P	-t	0.9504	1.1559	0.0730	299.9	66.0	-	6N	159E
0201	Aug 31	09:57:46	8576	210	-22243	60	P	-a	-0.9105	1.1647	0.2097	257.4	97.0	-	10S	113W
0202	Feb 24	15:53:00	8572	209	-22237	65	T+	pp	0.2300	2.4761	1.3966	368.5	227.3	90.1	10N	161E
0202	Aug 21	01:27:11	8567	209	-22231	70	T-	-p	-0.2114	2.4610	1.4788	328.0	212.2	90.1	13S	14E
0203	Feb 13	20:09:47	8562	209	-22225	75	P	a-	-0.4971	1.9630	0.9291	332.3	194.9	-	13N	97E
0203	Aug 10	11:44:42	8558	209	-22219	80	P	t-	0.5555	1.8560	0.8219	332.0	189.3	-	16S	140W
0204	Jan 04	20:59:07	8554	209	-22214	47	N	-a	1.4974	0.0970	-0.8762	83.2	-	-	24N	84E
0204	Feb 03	07:31:22	8553	209	-22213	85	N	a-	-1.1670	0.7086	-0.2751	216.2	-	-	16N	73W
0204	Jun 29	23:40:46	8549	209	-22208	52	Ne	-t	-1.5265	0.0927	-0.9776	94.2	-	-	25S	40E
0204	Jul 29	15:00:11	8549	209	-22207	90	N	t-	1.3373	0.4407	-0.6315	198.3	-	-	18S	171E
0204	Dec 24	12:42:55	8545	209	-22202	57	P	-a	0.8526	1.2826	0.3042	269.8	115.9	-	24N	154W
0205	Jun 19	01:41:48	8540	209	-22196	62	P	-t	-0.7443	1.5124	0.4725	317.8	154.3	-	24S	9E
0205	Dec 14	01:41:26	8535	208	-22190	67	T+	-p	0.1908	2.5202	1.4957	339.6	216.0	91.8	24N	10E
0206	Jun 08	10:21:55	8531	208	-22184	72	T+	pp	0.0585	2.7430	1.7579	336.2	219.8	101.3	23S	121W
0206	Dec 03	07:59:39	8526	208	-22178	77	P	t-	-0.5212	1.9428	0.8613	347.1	196.0	-	22N	86W
0207	May 29	01:20:29	8522	208	-22172	82	P	a-	0.8002	1.3622	0.4169	273.0	133.4	-	21S	14E
0207	Nov 22	07:56:28	8517	208	-22166	87	N	t-	-1.2138	0.6847	-0.4220	244.6	-	-	19N	86W
0208	Apr 18	11:08:12	8513	208	-22161	54	P	-a	-1.0031	1.0005	0.0342	248.9	41.0	-	12S	132W
0208	May 17	18:36:06	8513	208	-22160	92	Nb	a-	1.5182	0.0451	-0.9008	56.8	-	-	18S	115E
0208	Oct 11	16:10:09	8509	208	-22155	59	N	-h	1.0771	0.9039	-0.1401	256.9	-	-	8N	150E
0209	Apr 07	23:02:38	8504	208	-22149	64	T	-p	-0.2783	2.3578	1.3369	344.2	216.5	82.5	7S	50E
0209	Oct 01	02:52:23	8499	207	-22143	69	T	-p	0.3258	2.2533	1.2668	321.7	203.8	72.1	3N	10W
0210	Mar 28	03:36:21	8495	207	-22137	74	P	t-	0.4865	2.0010	0.9301	353.7	204.2	-	2S	17W
0210	Sep 20	18:24:54	8490	207	-22131	79	T	p-	-0.3706	2.1574	1.1980	309.3	196.6	62.4	2S	118E
0211	Mar 17	03:43:02	8486	207	-22125	84	N	t-	1.2165	0.6659	-0.4134	239.0	-	-	3N	18W
0211	Sep 10	10:14:01	8481	207	-22119	89	N	a-	-1.0816	0.8621	-0.1155	234.6	-	-	7S	119W
0212	Feb 04	17:38:01	8477	207	-22114	56	P	-a	-0.9218	1.1765	0.1568	277.2	89.2	-	16N	135E
0212	Jul 31	08:43:39	8473	207	-22108	61	P	-t	0.8847	1.2583	0.2116	298.8	107.4	-	18S	95W
0213	Jan 24	06:31:10	8468	207	-22102	66	T-	-p	-0.1905	2.4961	1.5206	320.9	208.8	90.5	19N	59W
0213	Jul 20	10:33:11	8463	206	-22096	71	T+	pp	0.1445	2.6301	1.5562	373.8	233.6	100.8	21S	122W
0214	Jan 13	22:22:30	8459	206	-22090	76	P	a-	0.4856	1.9519	0.9816	304.3	185.7	-	22N	63E
0214	Jul 09	11:36:37	8454	206	-22084	81	P	t-	-0.6101	1.7649	0.7126	337.3	184.0	-	23S	139W
0215	Jan 03	12:31:12	8450	206	-22078	86	N	a-	1.1962	0.6678	-0.3412	215.9	-	-	24N	150W
0215	May 30	09:38:32	8446	206	-22073	53	N	-a	1.2665	0.5194	-0.4514	190.3	-	-	20S	111W
0215	Jun 28	18:35:43	8445	206	-22072	91	N	a-	-1.3308	0.4154	-0.5831	177.6	-	-	25S	116E

0215	Nov 24	03:05:13	8441	206	-22067	58	Nx	-t	-1.0022	1.0664	-0.0272	289.1	-	-	20N	13W
0216	May 19	01:41:47	8437	206	-22061	63	P	-a	0.4970	1.9164	0.9751	300.5	185.4	-	19S	8E
0216	Nov 12	02:14:35	8432	206	-22055	68	T	-p	-0.3343	2.2966	1.1935	369.7	220.9	68.1	18N	2W
0217	May 08	18:45:04	8427	205	-22049	73	T-	p-	-0.2420	2.3911	1.4363	318.8	208.0	86.5	17S	112E
0217	Nov 01	03:51:03	8423	205	-22043	78	T	a-	0.3610	2.2267	1.1648	350.2	212.0	61.7	15N	26W
0218	Apr 28	08:09:01	8418	205	-22037	83	N	t-	-1.0349	0.9611	-0.0430	257.0	-	-	15S	89W
0218	Oct 21	12:44:18	8414	205	-22031	88	N	a-	1.0309	0.9677	-0.0348	250.7	-	-	12N	160W
0219	Mar 18	23:06:35	8410	205	-22026	55	Nx	-t	1.0045	1.0555	-0.0251	289.8	-	-	2N	51E
0219	Sep 11	18:05:48	8405	205	-22020	60	P	-a	-0.9495	1.0948	0.1364	251.8	79.0	-	6S	123E
0220	Mar 06	23:10:37	8401	205	-22014	65	T	pp	0.2750	2.3909	1.3167	365.5	224.3	83.0	6N	51E
0220	Aug 31	09:15:29	8396	205	-22008	70	T-	-p	-0.2586	2.3775	1.3894	327.9	210.2	84.2	9S	104W
0221	Feb 24	03:58:57	8391	204	-22002	75	P	a-	-0.4614	2.0251	0.9977	333.0	198.8	-	9N	21W
0221	Aug 20	19:00:06	8387	204	-21996	80	P	t-	0.5002	1.9607	0.9202	338.3	197.4	-	12S	110E
0222	Jan 15	05:41:49	8383	204	-21991	47	N	-a	1.5052	0.0813	-0.8892	76.1	-	-	23N	47W
0222	Feb 13	15:50:17	8382	204	-21990	85	N	a-	-1.1402	0.7552	-0.2235	221.4	-	-	12N	161E
0222	Aug 09	21:46:02	8378	204	-21984	90	N	t-	1.2715	0.5635	-0.5128	222.1	-	-	15S	69E
0223	Jan 04	21:29:04	8374	204	-21979	57	P	-a	0.8597	1.2697	0.2912	269.2	113.8	-	24N	75E
0223	Jun 30	08:23:02	8369	204	-21973	62	P	-t	-0.8231	1.3669	0.3290	306.2	131.3	-	24S	91W
0223	Dec 25	10:16:22	8364	204	-21967	67	T+	-p	0.1936	2.5162	1.4896	340.8	216.5	91.7	24N	118W
0224	Jun 18	17:28:15	8360	204	-21961	72	T-	pp	-0.0197	2.8129	1.8307	335.0	219.5	101.8	24S	132E
0224	Dec 13	16:13:23	8355	204	-21955	77	P	t-	-0.5195	1.9469	0.8633	348.3	196.6	-	23N	151E
0225	Jun 08	08:43:54	8351	203	-21949	82	P	a-	0.7246	1.5002	0.5563	281.4	150.7	-	22S	97W
0225	Dec 02	15:58:11	8346	203	-21943	87	N	t-	-1.2086	0.6943	-0.4127	246.0	-	-	21N	154E
0226	Apr 29	18:35:06	8342	203	-21938	54	N	-a	-1.0720	0.8743	-0.0927	236.4	-	-	15S	115E
0226	May 29	02:00:18	8341	203	-21937	92	N	a-	1.4500	0.1706	-0.7762	109.4	-	-	20S	3E
0226	Oct 23	00:21:43	8338	203	-21932	59	N	-h	1.0883	0.8830	-0.1604	253.7	-	-	12N	26E
0227	Apr 19	06:11:59	8333	203	-21926	64	T	-h	-0.3454	2.2353	1.2134	342.4	212.3	68.8	11S	59W
0227	Oct 12	11:16:44	8328	203	-21920	69	T	-p	0.3446	2.2190	1.2322	320.1	201.9	67.9	8N	138W
0228	Apr 07	10:27:46	8324	203	-21914	74	T	t-	0.4217	2.1194	1.0497	358.8	212.5	36.3	6S	122W
0228	Oct 01	02:48:57	8319	203	-21908	79	T	p-	-0.3450	2.2060	1.2437	310.8	198.4	68.1	3N	10W
0229	Mar 27	10:39:50	8315	202	-21902	84	N	t-	1.1571	0.7725	-0.3021	254.1	-	-	1S	124W
0229	Sep 20	18:21:36	8310	202	-21896	89	N	a-	-1.0523	0.9186	-0.0644	241.6	-	-	2S	118E
0230	Feb 15	01:43:09	8306	202	-21891	56	P	-a	-0.9438	1.1331	0.1195	272.1	78.0	-	12N	13E
0230	Aug 11	15:44:13	8302	202	-21885	61	P	-t	0.9503	1.1408	0.0884	289.4	70.8	-	15S	159E
0231	Feb 04	15:00:43	8297	202	-21879	66	T-	-p	-0.2086	2.4608	1.4893	319.5	207.8	88.9	16N	174E
0231	Jul 31	17:10:26	8292	202	-21873	71	T+	pp	0.2191	2.4946	1.4180	372.2	230.3	92.7	19S	138E
0232	Jan 25	07:01:12	8288	202	-21867	76	T	a-	0.4731	1.9743	1.0053	305.4	187.3	10.8	20N	67W
0232	Jul 19	18:19:37	8283	202	-21861	81	P	t-	-0.5319	1.9081	0.8565	343.4	196.2	-	22S	120E
0233	Jan 13	21:02:56	8278	201	-21855	86	N	a-	1.1911	0.6775	-0.3325	217.9	-	-	23N	82E

0233 Jun 09	16:52:00	8275	201	-21850	53	N	-a	1.3364	0.3897	-0.5782	166.3	-	-	22S	141E
0233 Jul 09	01:43:10	8274	201	-21849	91	N	a-	-1.2546	0.5542	-0.4422	201.6	-	-	24S	9E
0233 Dec 04	11:11:49	8270	201	-21844	58	Nx	-t	-1.0090	1.0549	-0.0408	288.5	-	-	22N	135W
0234 May 30	09:08:24	8265	201	-21838	63	P	-a	0.5705	1.7811	0.8409	294.7	176.2	-	21S	104W
0234 Nov 23	10:15:46	8261	201	-21832	68	T	-p	-0.3408	2.2847	1.1815	369.1	220.1	66.2	20N	122W
0235 May 20	02:07:54	8256	201	-21826	73	T-	pp	-0.1690	2.5257	1.5697	321.7	211.6	94.0	20S	1E
0235 Nov 12	12:07:05	8252	201	-21820	78	T	a-	0.3526	2.2416	1.1810	349.5	212.2	64.1	18N	151W
0236 May 08	15:12:46	8247	201	-21814	83	P	t-	-0.9649	1.0905	0.0845	271.1	66.8	-	18S	164E
0236 Oct 31	21:18:16	8242	201	-21808	88	N	a-	1.0187	0.9898	-0.0120	252.2	-	-	15N	71E
0237 Mar 29	05:59:39	8238	200	-21803	55	N	-t	1.0675	0.9388	-0.1394	276.7	-	-	2S	54W
0237 Sep 22	02:22:39	8234	200	-21797	60	P	-a	-0.9813	1.0383	0.0763	247.1	59.6	-	2S	3W
0238 Mar 18	06:19:56	8229	200	-21791	65	T	-p	0.3273	2.2922	1.2235	361.7	220.1	72.1	1N	58W
0238 Sep 11	17:10:20	8225	200	-21785	70	T	-p	-0.2994	2.3056	1.3116	327.9	208.1	77.6	5S	136E
0239 Mar 07	11:42:38	8220	200	-21779	75	T	a-	-0.4204	2.0971	1.0762	333.9	202.9	42.4	5N	138W
0239 Sep 01	02:21:03	8215	200	-21773	80	T	t-	0.4503	2.0555	1.0086	343.6	203.9	14.8	9S	1W
0240 Jan 26	14:20:09	8212	200	-21768	47	N	-a	1.5168	0.0585	-0.9088	64.6	-	-	20N	176W
0240 Feb 25	00:02:55	8211	200	-21767	85	N	a-	-1.1080	0.8116	-0.1619	227.5	-	-	9N	37E
0240 Aug 20	04:37:35	8206	200	-21761	90	N	t-	1.2101	0.6783	-0.4022	241.5	-	-	12S	35W
0241 Jan 15	06:11:13	8202	199	-21756	57	P	-a	0.8699	1.2510	0.2727	268.2	110.6	-	22N	55W
0241 Jul 10	15:09:50	8198	199	-21750	62	P	-t	-0.8979	1.2287	0.1925	293.8	102.1	-	23S	167E
0242 Jan 04	18:46:09	8193	199	-21744	67	T+	-p	0.2000	2.5053	1.4771	341.8	216.8	91.2	23N	115E
0242 Jun 30	00:40:06	8188	199	-21738	72	T-	pp	-0.0942	2.6750	1.6950	333.1	217.9	99.7	24S	24E
0242 Dec 25	00:23:30	8184	199	-21732	77	P	t-	-0.5152	1.9556	0.8706	349.5	197.6	-	23N	29E
0243 Jun 19	16:09:04	8179	199	-21726	82	P	a-	0.6501	1.6365	0.6933	288.7	164.4	-	23S	151E
0243 Dec 13	23:59:25	8175	199	-21720	87	N	t-	-1.2028	0.7047	-0.4018	247.5	-	-	22N	34E
0244 May 10	01:56:21	8171	199	-21715	54	N	-a	-1.1449	0.7413	-0.2271	221.4	-	-	19S	3E
0244 Jun 08	09:22:56	8170	199	-21714	92	N	a-	1.3806	0.2988	-0.6496	143.4	-	-	22S	108W
0244 Nov 02	08:40:12	8166	198	-21709	59	N	-h	1.0945	0.8711	-0.1712	251.5	-	-	16N	100W
0245 Apr 29	13:11:45	8162	198	-21703	64	T	-h	-0.4192	2.1005	1.0771	339.6	206.1	43.4	15S	165W
0245 Oct 22	19:49:18	8157	198	-21697	69	T	-p	0.3571	2.1962	1.2093	318.8	200.5	64.8	12N	93E
0246 Apr 18	17:09:52	8152	198	-21691	74	T	t-	0.3497	2.2510	1.1823	363.5	220.0	66.6	10S	136E
0246 Oct 12	11:20:17	8148	198	-21685	79	T	p-	-0.3254	2.2432	1.2783	312.0	199.7	71.9	7N	139W
0247 Apr 07	17:28:59	8143	198	-21679	84	N	t-	1.0908	0.8920	-0.1782	269.0	-	-	6S	132E
0247 Oct 02	02:36:33	8138	198	-21673	89	N	a-	-1.0296	0.9629	-0.0254	247.1	-	-	2N	7W
0248 Feb 26	09:40:09	8135	198	-21668	56	P	-a	-0.9732	1.0759	0.0686	265.5	59.3	-	8N	108W
0248 Aug 21	22:50:12	8130	198	-21662	61	Nx	-t	1.0104	1.0336	-0.0248	279.8	-	-	11S	51E
0249 Feb 14	23:23:08	8125	197	-21656	66	T-	-p	-0.2331	2.4137	1.4466	318.0	206.5	86.3	13N	47E
0249 Aug 10	23:54:45	8121	197	-21650	71	T	pp	0.2878	2.3701	1.2904	369.9	225.9	81.2	16S	36E
0250 Feb 04	15:33:04	8116	197	-21644	76	T	p-	0.4552	2.0064	1.0388	306.7	189.4	29.1	17N	165E
0250 Jul 31	01:10:42	8111	197	-21638	81	P	t-	-0.4593	2.0412	0.9898	348.1	205.3	-	19S	17E

0251	Jan 25	05:29:23	8107	197	-21632	86	N	a-	1.1827	0.6934	-0.3172	220.7	-	-	20N	44W
0251	Jun 21	00:06:58	8103	197	-21627	53	N	-a	1.4057	0.2614	-0.7041	137.4	-	-	22S	32E
0251	Jul 20	08:55:28	8102	197	-21626	91	N	a-	-1.1812	0.6881	-0.3067	220.9	-	-	22S	99W
0251	Dec 15	19:19:01	8098	197	-21621	58	Nx	-t	-1.0149	1.0449	-0.0522	288.0	-	-	23N	104E
0252	Jun 09	16:34:07	8094	197	-21615	63	P	-a	0.6445	1.6450	0.7052	288.0	165.0	-	22S	144E
0252	Dec 03	18:19:17	8089	196	-21609	68	T	-p	-0.3461	2.2747	1.1722	368.3	219.5	64.6	22N	117E
0253	May 30	09:27:42	8084	196	-21603	73	T-	pp	-0.0939	2.6644	1.7066	324.0	214.1	98.6	22S	110W
0253	Nov 22	20:27:28	8080	196	-21597	78	T	p-	0.3469	2.2511	1.1924	348.6	212.2	65.7	21N	84E
0254	May 19	22:12:47	8075	196	-21591	83	P	t-	-0.8922	1.2251	0.2167	284.3	105.3	-	21S	58E
0254	Nov 12	05:55:58	8071	196	-21585	88	P	a-	1.0090	1.0070	0.0063	253.2	17.7	-	19N	59W
0255	Apr 09	12:45:51	8067	196	-21580	55	N	-t	1.1354	0.8130	-0.2630	260.8	-	-	6S	157W
0255	Oct 03	10:46:13	8062	196	-21574	60	P	-a	-1.0075	0.9920	0.0263	243.1	35.3	-	3N	130W
0256	Mar 28	13:20:50	8057	196	-21568	65	T	-t	0.3870	2.1798	1.1166	357.0	214.5	53.9	3S	165W
0256	Sep 22	01:12:28	8053	195	-21562	70	T	-p	-0.3335	2.2461	1.2460	327.9	206.0	70.6	1S	14E
0257	Mar 17	19:17:31	8048	195	-21556	75	T	a-	-0.3714	2.1839	1.1695	335.0	207.1	61.3	1N	106E
0257	Sep 11	09:50:23	8044	195	-21550	80	T	p-	0.4079	2.1364	1.0832	348.1	208.9	45.3	4S	115W
0258	Feb 05	22:50:03	8040	195	-21545	47	Ne	-a	1.5355	0.0224	-0.9416	40.1	-	-	17N	56E
0258	Mar 07	08:06:31	8039	195	-21544	85	N	a-	-1.0680	0.8825	-0.0861	234.7	-	-	4N	85W
0258	Aug 31	11:39:16	8034	195	-21538	90	N	t-	1.1566	0.7785	-0.3062	256.6	-	-	8S	142W
0259	Jan 26	14:46:44	8030	195	-21533	57	P	-a	0.8855	1.2221	0.2443	266.4	105.3	-	20N	176E
0259	Jul 21	22:02:21	8026	195	-21527	62	P	-t	-0.9690	1.0978	0.0627	280.7	59.2	-	22S	64E
0260	Jan 16	03:10:58	8021	195	-21521	67	T+	-p	0.2099	2.4877	1.4584	342.6	217.0	90.3	21N	11W
0260	Jul 10	07:55:21	8017	195	-21515	72	T-	pp	-0.1670	2.5405	1.5623	330.6	215.3	94.9	23S	85W
0261	Jan 04	08:29:44	8012	194	-21509	77	P	t-	-0.5083	1.9686	0.8829	350.9	198.9	-	22N	92W
0261	Jun 29	23:35:40	8007	194	-21503	82	P	a-	0.5765	1.7715	0.8283	294.9	175.5	-	23S	39E
0261	Dec 24	08:00:18	8003	194	-21497	87	N	t-	-1.1964	0.7159	-0.3892	249.0	-	-	23N	86W
0262	May 21	09:13:19	7999	194	-21492	54	N	-a	-1.2203	0.6039	-0.3664	203.3	-	-	21S	107W
0262	Jun 19	16:45:16	7998	194	-21491	92	N	a-	1.3114	0.4268	-0.5238	169.7	-	-	22S	141E
0262	Nov 13	17:04:19	7994	194	-21486	59	N	-a	1.0970	0.8658	-0.1749	250.0	-	-	19N	134E
0263	May 10	20:06:22	7990	194	-21480	64	P	-t	-0.4963	1.9600	0.9348	335.6	197.9	-	18S	90E
0263	Nov 03	04:28:06	7985	194	-21474	69	T	-p	0.3650	2.1816	1.1949	317.7	199.5	62.7	15N	37W
0264	Apr 28	23:44:36	7980	194	-21468	74	T+	pp	0.2720	2.3931	1.3252	367.6	226.4	84.6	14S	36E
0264	Oct 22	19:58:14	7976	193	-21462	79	T	p-	-0.3115	2.2699	1.3025	312.9	200.6	74.3	11N	90E
0265	Apr 18	00:12:10	7971	193	-21456	84	Nx	t-	1.0187	1.0220	-0.0438	283.3	-	-	10S	30E
0265	Oct 12	10:57:50	7966	193	-21450	89	P	a-	-1.0127	0.9966	0.0031	251.4	12.5	-	7N	134W
0266	Mar 08	17:30:30	7962	193	-21445	56	P	-a	-1.0088	1.0075	0.0065	257.7	18.4	-	4N	133E
0266	Sep 02	06:04:34	7958	193	-21439	61	N	-t	1.0627	0.9405	-0.1238	270.6	-	-	7S	59W
0267	Feb 26	07:38:42	7953	193	-21433	66	T-	-p	-0.2635	2.3559	1.3929	316.1	204.8	82.6	9N	78W
0267	Aug 22	06:46:49	7949	193	-21427	71	T	-t	0.3500	2.2576	1.1748	367.2	220.7	65.6	12S	68W
0268	Feb 15	23:57:04	7944	193	-21421	76	T	p-	0.4313	2.0495	1.0835	308.5	192.1	42.2	13N	38E

0268	Aug 10	08:10:44	7939	193	-21415	81	T	t-	-0.3934	2.1620	1.1106	351.4	212.0	52.2	16S	89W
0269	Feb 04	13:45:51	7935	192	-21409	86	N	a-	1.1672	0.7219	-0.2890	225.3	-	-	17N	169W
0269	Jul 01	07:25:48	7931	192	-21404	53	N	-a	1.4722	0.1385	-0.8254	100.8	-	-	22S	78W
0269	Jul 30	16:16:22	7930	192	-21403	91	N	a-	-1.1138	0.8111	-0.1827	236.0	-	-	20S	150E
0269	Dec 26	03:22:33	7926	192	-21398	58	Nx	-t	-1.0228	1.0305	-0.0671	286.9	-	-	23N	16W
0270	Jun 21	00:00:51	7921	192	-21392	63	P	-a	0.7179	1.5106	0.5705	280.5	151.6	-	23S	32E
0270	Dec 15	02:22:38	7917	192	-21386	68	T	-p	-0.3515	2.2639	1.1629	367.4	218.8	63.0	23N	3W
0271	Jun 10	16:45:22	7912	192	-21380	73	T-	pp	-0.0178	2.8053	1.8450	325.6	215.4	100.6	23S	140E
0271	Dec 04	04:51:32	7908	192	-21374	78	T	p-	0.3436	2.2558	1.1998	347.5	212.0	66.6	23N	42W
0272	May 30	05:05:49	7903	192	-21368	83	P	t-	-0.8149	1.3686	0.3572	297.0	132.9	-	23S	45W
0272	Nov 22	14:39:24	7898	191	-21362	88	P	a-	1.0037	1.0160	0.0168	253.4	28.9	-	22N	170E
0273	Apr 19	19:22:39	7894	191	-21357	55	N	-t	1.2100	0.6751	-0.3989	241.0	-	-	10S	102E
0273	Oct 13	19:17:22	7890	191	-21351	60	N	-a	-1.0274	0.9574	-0.0118	240.2	-	-	7N	101E
0274	Apr 08	20:15:28	7885	191	-21345	65	P	-t	0.4522	2.0575	0.9996	351.3	207.1	-	7S	89E
0274	Oct 03	09:21:57	7880	191	-21339	70	T	-a	-0.3605	2.1996	1.1936	328.1	204.3	63.9	4N	110W
0275	Mar 29	02:47:21	7876	191	-21333	75	T	a-	-0.3171	2.2801	1.2722	335.9	211.0	74.9	3S	8W
0275	Sep 22	17:25:34	7871	191	-21327	80	T	p-	0.3711	2.2071	1.1475	352.0	212.8	59.2	0S	129E
0276	Mar 17	16:04:25	7866	191	-21321	85	N	a-	-1.0230	0.9627	-0.0010	242.4	-	-	0N	153E
0276	Sep 10	18:48:34	7862	191	-21315	90	N	t-	1.1090	0.8680	-0.2208	269.0	-	-	4S	109E
0277	Feb 05	23:14:52	7858	190	-21310	57	P	-a	0.9068	1.1826	0.2055	263.7	97.3	-	17N	49E
0277	Aug 01	05:03:26	7853	190	-21304	62	N	-t	-1.0337	0.9786	-0.0556	267.5	-	-	19S	42W
0278	Jan 26	11:28:20	7849	190	-21298	67	T+	-p	0.2254	2.4596	1.4296	343.3	216.8	88.7	19N	135W
0278	Jul 21	15:17:27	7844	190	-21292	72	T-	-p	-0.2348	2.4156	1.4386	327.5	211.7	87.9	21S	164E
0279	Jan 15	16:29:07	7839	190	-21286	77	P	t-	-0.4962	1.9907	0.9049	352.6	201.0	-	21N	149E
0279	Jul 11	07:06:34	7835	190	-21280	82	P	a-	0.5062	1.9008	0.9571	300.2	184.3	-	22S	74W
0280	Jan 04	15:56:50	7830	190	-21274	87	N	t-	-1.1862	0.7335	-0.3696	251.4	-	-	22N	156E
0280	May 31	16:25:53	7826	190	-21269	54	N	-a	-1.2984	0.4620	-0.5108	180.9	-	-	23S	145E
0280	Jun 30	00:07:54	7825	190	-21268	92	N	a-	1.2428	0.5542	-0.3993	191.5	-	-	22S	30E
0280	Nov 24	01:32:52	7821	189	-21263	59	N	-a	1.0967	0.8652	-0.1733	249.0	-	-	22N	7E
0281	May 21	02:54:41	7817	189	-21257	64	P	-t	-0.5776	1.8120	0.7844	330.2	186.7	-	21S	13W
0281	Nov 13	13:11:42	7812	189	-21251	69	T	-p	0.3694	2.1731	1.1870	316.8	198.7	61.4	19N	169W
0282	May 10	06:13:27	7807	189	-21245	74	T+	pp	0.1897	2.5439	1.4764	370.8	231.3	96.5	17S	62W
0282	Nov 03	04:42:25	7803	189	-21239	79	T	p-	-0.3027	2.2873	1.3177	313.6	201.2	75.8	15N	41W
0283	Apr 29	06:49:22	7798	189	-21233	84	P	t-	0.9410	1.1625	0.1009	296.8	76.7	-	13S	71W
0283	Oct 23	19:25:48	7794	189	-21227	89	P	a-	-1.0018	1.0190	0.0206	254.5	32.1	-	11N	98E
0284	Mar 19	01:13:25	7790	189	-21222	56	N	-a	-1.0511	0.9267	-0.0680	248.1	-	-	0S	16E
0284	Sep 12	13:26:29	7785	189	-21216	61	N	-t	1.1079	0.8607	-0.2096	262.0	-	-	3S	171W
0285	Mar 08	15:45:25	7780	188	-21210	66	T	-p	-0.3014	2.2841	1.3254	313.9	202.5	77.0	4N	159E
0285	Sep 01	13:48:30	7776	188	-21204	71	T	-t	0.4041	2.1598	1.0739	364.3	215.2	44.1	8S	175W
0286	Feb 26	08:13:34	7771	188	-21198	76	T	p-	0.4017	2.1031	1.1385	310.5	195.2	53.5	9N	87W

0286 Aug 21	15:19:19	7766	188	-21192	81	T	t-	-0.3337	2.2716	1.2201	353.7	216.7	70.8	13S	163E
0287 Feb 15	21:55:16	7762	188	-21186	86	N	a-	1.1468	0.7593	-0.2517	230.9	-	-	14N	68E
0287 Jul 12	14:48:33	7758	188	-21181	53	Ne	-a	1.5359	0.0210	-0.9417	39.6	-	-	21S	171E
0287 Aug 10	23:44:04	7757	188	-21180	91	N	a-	-1.0513	0.9256	-0.0675	248.3	-	-	17S	37E
0288 Jan 06	11:22:51	7753	188	-21175	58	Nx	-t	-1.0331	1.0115	-0.0859	285.2	-	-	22N	136W
0288 Jul 01	07:28:31	7748	188	-21169	63	P	-a	0.7903	1.3783	0.4371	272.3	135.4	-	23S	80W
0288 Dec 25	10:25:26	7744	188	-21163	68	T	-p	-0.3578	2.2513	1.1526	366.4	218.0	61.2	23N	123W
0289 Jun 21	00:03:06	7739	187	-21157	73	T+	pp	0.0576	2.7339	1.7705	326.6	215.6	100.1	24S	31E
0289 Dec 14	13:15:19	7734	187	-21151	78	T	p-	0.3394	2.2619	1.2091	346.3	211.8	67.8	24N	167W
0290 Jun 10	11:58:34	7730	187	-21145	83	P	t-	-0.7380	1.5114	0.4965	308.3	154.0	-	24S	149W
0290 Dec 03	23:24:13	7725	187	-21139	88	P	a-	0.9994	1.0228	0.0257	253.4	35.6	-	23N	39E
0291 May 01	01:54:09	7721	187	-21134	55	N	-t	1.2884	0.5303	-0.5418	216.5	-	-	14S	3E
0291 May 30	16:42:34	7720	187	-21133	93	Nb	t-	-1.5495	0.0455	-1.0151	65.6	-	-	23S	140E
0291 Oct 25	03:54:09	7717	187	-21128	60	N	-a	-1.0425	0.9313	-0.0413	237.9	-	-	11N	29W
0292 Apr 19	03:04:03	7712	187	-21122	65	P	-t	0.5229	1.9251	0.8724	344.5	197.6	-	11S	14W
0292 Oct 13	17:38:13	7707	187	-21116	70	T	-a	-0.3815	2.1639	1.1522	328.5	202.9	57.5	8N	125E
0293 Apr 08	10:09:17	7703	186	-21110	75	T-	p-	-0.2552	2.3907	1.3888	336.7	214.5	85.7	7S	120W
0293 Oct 03	01:09:49	7698	186	-21104	80	T	p-	0.3423	2.2630	1.1974	355.2	215.7	67.4	4N	12E
0294 Mar 28	23:54:25	7693	186	-21098	85	P	a-	-0.9708	1.0562	0.0971	250.6	67.6	-	4S	34E
0294 Sep 22	02:07:14	7689	186	-21092	90	N	t-	1.0686	0.9439	-0.1487	278.7	-	-	0N	2W
0295 Feb 17	07:34:40	7685	186	-21087	57	P	-a	0.9349	1.1307	0.1544	259.8	85.1	-	13N	77W
0295 Aug 12	12:12:51	7680	186	-21081	62	N	-t	-1.0925	0.8705	-0.1632	254.3	-	-	16S	150W
0296 Feb 06	19:37:10	7675	186	-21075	67	T+	-p	0.2471	2.4199	1.3895	343.6	216.3	86.0	16N	102E
0296 Jul 31	22:45:23	7671	186	-21069	72	T	-p	-0.2984	2.2985	1.3221	324.1	207.5	78.4	19S	52E
0297 Jan 26	00:21:56	7666	186	-21063	77	P	t-	-0.4793	2.0216	0.9364	354.5	203.7	-	18N	30E
0297 Jul 21	14:41:42	7661	185	-21057	82	T	a-	0.4392	2.0243	1.0794	304.5	191.3	41.1	20S	172E
0298 Jan 14	23:49:04	7657	185	-21051	87	N	t-	-1.1722	0.7578	-0.3424	254.5	-	-	20N	38E
0298 Jun 11	23:37:21	7653	185	-21046	54	N	-a	-1.3764	0.3204	-0.6556	153.3	-	-	25S	37E
0298 Jul 11	07:33:26	7652	185	-21045	92	N	a-	1.1768	0.6771	-0.2799	209.7	-	-	21S	81W
0298 Dec 05	10:04:59	7648	185	-21040	59	N	-a	1.0946	0.8677	-0.1681	248.4	-	-	24N	121W
0299 Jun 01	09:39:05	7643	185	-21034	64	P	-t	-0.6610	1.6604	0.6300	323.4	172.3	-	23S	114W
0299 Nov 24	21:59:29	7639	185	-21028	69	T	-p	0.3710	2.1697	1.1847	316.0	198.2	61.0	21N	60E
0300 May 20	12:38:03	7634	185	-21022	74	T+	pp	0.1039	2.7013	1.6339	373.1	234.6	103.7	20S	159W
0300 Nov 13	13:30:48	7629	185	-21016	79	T	p-	-0.2976	2.2976	1.3261	314.1	201.5	76.5	18N	174W

4TH CENTURY CE

**In the 4th century CE the total number of lunar eclipses was 227 lunar eclipses:
76 penumbral lunar eclipses, 69 partial lunar eclipses, 82 total lunar eclipses
(24 central total lunar eclipses, 58 non-central total lunar eclipses).**

	CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
	DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
		GREATEST		S								m	m	m	°	°
		ECLIPSE														
0301	May 09	13:23:11	7625	184	-21010	84	P	t-	0.8595	1.3101	0.2522	309.1	118.5	-	17S	170W
0301	Nov 03	03:58:41	7620	184	-21004	89	P	a-	-0.9955	1.0329	0.0299	256.8	38.8	-	14N	31W
0302	Mar 30	08:50:43	7616	184	-20999	56	N	-a	-1.0986	0.8365	-0.1522	236.9	-	-	5S	100W
0302	Sep 23	20:55:18	7611	184	-20993	61	N	-t	1.1466	0.7925	-0.2834	254.1	-	-	1N	76E
0303	Mar 19	23:45:39	7607	184	-20987	66	T	-p	-0.3452	2.2018	1.2470	311.3	199.4	68.9	0N	37E
0303	Sep 12	20:59:08	7602	184	-20981	71	P	-t	0.4509	2.0755	0.9866	361.4	209.7	-	4S	76E
0304	Mar 08	16:20:06	7597	184	-20975	76	T	p-	0.3640	2.1715	1.2084	312.9	198.8	64.3	5N	150E
0304	Aug 31	22:38:24	7593	184	-20969	81	T	p-	-0.2818	2.3671	1.3153	355.1	220.0	81.6	9S	52E
0305	Feb 26	05:53:29	7588	184	-20963	86	N	a-	1.1181	0.8120	-0.1992	238.3	-	-	10N	53W
0305	Aug 21	07:21:57	7583	183	-20957	91	P	a-	-0.9960	1.0268	0.0341	257.9	41.7	-	13S	78W
0306	Jan 16	19:15:34	7579	183	-20952	58	N	-t	-1.0490	0.9819	-0.1146	282.1	-	-	20N	106E
0306	Jul 12	15:00:27	7575	183	-20946	63	P	-a	0.8591	1.2529	0.3101	263.5	116.2	-	21S	167E
0307	Jan 05	18:25:25	7570	183	-20940	68	T	-p	-0.3665	2.2337	1.1382	365.0	217.0	58.4	22N	118E
0307	Jul 02	07:20:12	7565	183	-20934	73	T+	-p	0.1327	2.5979	1.6308	326.9	214.6	96.9	23S	79W
0307	Dec 25	21:40:09	7561	183	-20928	78	T	p-	0.3353	2.2673	1.2185	345.1	211.7	68.9	24N	68E
0308	Jun 20	18:48:08	7556	183	-20922	83	P	t-	-0.6595	1.6575	0.6384	318.6	171.2	-	24S	109E
0308	Dec 14	08:10:45	7551	183	-20916	88	P	a-	0.9959	1.0279	0.0333	253.1	40.4	-	24N	92W
0309	May 11	08:19:14	7547	183	-20911	55	N	-t	1.3714	0.3773	-0.6933	185.2	-	-	17S	95W
0309	Jun 09	23:06:03	7547	183	-20910	93	N	t-	-1.4664	0.1989	-0.8634	135.6	-	-	24S	44E
0309	Nov 04	12:37:14	7543	182	-20905	60	N	-a	-1.0526	0.9144	-0.0612	236.6	-	-	15N	161W
0310	Apr 30	09:49:08	7538	182	-20899	65	P	-t	0.5973	1.7862	0.7383	336.4	185.6	-	14S	117W
0310	Oct 25	01:59:38	7533	182	-20893	70	T	-a	-0.3975	2.1371	1.1201	329.1	201.8	51.7	12N	2W
0311	Apr 19	17:28:13	7529	182	-20887	75	T-	p-	-0.1898	2.5078	1.5117	337.0	217.2	93.5	11S	129E
0311	Oct 14	09:00:02	7524	182	-20881	80	T	p-	0.3190	2.3086	1.2373	357.9	218.0	73.0	8N	107W
0312	Apr 08	07:38:12	7519	182	-20875	85	P	a-	-0.9130	1.1600	0.2052	259.0	96.7	-	8S	83W
0312	Oct 02	09:34:25	7514	182	-20869	90	Nx	t-	1.0350	1.0075	-0.0887	286.4	-	-	5N	115W
0313	Feb 27	15:46:16	7511	182	-20864	57	P	-a	0.9693	1.0672	0.0917	254.7	66.3	-	9N	159E
0313	Aug 22	19:32:36	7506	182	-20858	62	N	-t	-1.1437	0.7764	-0.2570	241.7	-	-	13S	99E

0314 Feb 17	03:36:34	7501	181	-20852	67	T	-p	0.2759	2.3671	1.3364	343.7	215.3	81.8	12N	19W
0314 Aug 12	06:22:38	7497	181	-20846	72	T	-p	-0.3551	2.1944	1.2183	320.6	202.8	66.7	16S	64W
0315 Feb 06	08:06:00	7492	181	-20840	77	P	t-	-0.4555	2.0647	0.9805	356.7	207.1	-	15N	86W
0315 Aug 01	22:22:16	7487	181	-20834	82	T	p-	0.3766	2.1400	1.1934	308.1	196.7	61.9	18S	56E
0316 Jan 26	07:35:00	7482	181	-20828	87	N	t-	-1.1526	0.7920	-0.3047	258.9	-	-	18N	79W
0316 Jun 22	06:47:46	7478	181	-20823	54	N	-a	-1.4545	0.1790	-0.8008	116.5	-	-	25S	71W
0316 Jul 21	15:02:25	7478	181	-20822	92	N	a-	1.1138	0.7948	-0.1663	225.2	-	-	20S	166E
0316 Dec 15	18:36:55	7474	181	-20817	59	N	-a	1.0934	0.8681	-0.1642	247.6	-	-	25N	112E
0317 Jun 11	16:20:37	7469	181	-20811	64	P	-t	-0.7457	1.5067	0.4729	315.1	153.5	-	24S	145E
0317 Dec 05	06:49:07	7464	180	-20805	69	T	-p	0.3717	2.1676	1.1841	315.3	197.9	60.8	23N	73W
0318 May 31	18:59:47	7460	180	-20799	74	T+	pp	0.0161	2.8626	1.7949	374.2	236.0	106.6	22S	105E
0318 Nov 24	22:21:55	7455	180	-20793	79	T	p-	-0.2948	2.3034	1.3303	314.6	201.8	76.9	21N	53E
0319 May 20	19:54:10	7450	180	-20787	84	P	t-	0.7746	1.4642	0.4098	320.0	147.1	-	19S	91E
0319 Nov 14	12:36:05	7446	180	-20781	89	P	a-	-0.9936	1.0385	0.0314	258.3	39.8	-	18N	161W
0320 Apr 09	16:20:14	7442	180	-20776	56	N	-a	-1.1532	0.7335	-0.2495	223.2	-	-	9S	146E
0320 May 09	02:05:56	7441	180	-20775	94	N	a-	1.4858	0.1344	-0.8707	104.4	-	-	16S	2W
0320 Oct 04	04:32:43	7437	180	-20770	61	N	-t	1.1776	0.7384	-0.3430	247.4	-	-	6N	40W
0321 Mar 30	07:38:05	7432	180	-20764	66	T	-p	-0.3959	2.1070	1.1559	308.1	195.3	56.3	4S	83W
0321 Sep 23	04:19:44	7428	180	-20758	71	P	-t	0.4898	2.0056	0.9139	358.6	204.4	-	0N	36W
0322 Mar 20	00:19:08	7423	179	-20752	76	T	p-	0.3204	2.2509	1.2889	315.4	202.4	73.9	1N	28E
0322 Sep 12	06:07:56	7418	179	-20746	81	T-	p-	-0.2374	2.4487	1.3965	355.8	222.1	88.5	5S	62W
0323 Mar 09	13:43:48	7413	179	-20740	86	N	h-	1.0839	0.8748	-0.1364	246.5	-	-	5N	172W
0323 Sep 01	15:07:27	7409	179	-20734	91	P	a-	-0.9463	1.1180	0.1253	265.6	78.7	-	9S	164E
0324 Jan 28	03:03:00	7405	179	-20729	58	N	-t	-1.0686	0.9452	-0.1499	278.1	-	-	17N	11W
0324 Jul 22	22:36:11	7400	179	-20723	63	P	-a	0.9243	1.1342	0.1892	254.3	92.4	-	19S	53E
0325 Jan 16	02:20:25	7395	179	-20717	68	T	-p	-0.3796	2.2078	1.1161	363.2	215.6	53.9	21N	1W
0325 Jul 12	14:40:33	7391	179	-20711	73	T+	-p	0.2042	2.4689	1.4975	326.6	212.5	91.2	22S	171E
0326 Jan 05	06:01:51	7386	179	-20705	78	T	p-	0.3284	2.2778	1.2335	343.9	211.8	70.8	23N	57W
0326 Jul 02	01:39:22	7381	178	-20699	83	P	t-	-0.5831	1.8000	0.7764	327.7	185.1	-	24S	6E
0326 Dec 25	16:55:03	7377	178	-20693	88	P	a-	0.9906	1.0362	0.0447	253.2	46.6	-	25N	138E
0327 May 22	14:42:10	7373	178	-20688	55	N	-t	1.4554	0.2227	-0.8467	144.3	-	-	19S	169E
0327 Jun 21	05:30:18	7372	178	-20687	93	N	t-	-1.3838	0.3514	-0.7130	178.0	-	-	25S	53W
0327 Nov 15	21:23:43	7368	178	-20682	60	N	-a	-1.0597	0.9027	-0.0756	235.9	-	-	18N	67E
0328 May 10	16:29:29	7363	178	-20676	65	P	-t	0.6761	1.6393	0.5960	326.9	170.3	-	17S	142E
0328 Nov 04	10:26:42	7358	178	-20670	70	T	-a	-0.4082	2.1201	1.0982	330.0	201.2	47.2	16N	129W
0329 Apr 30	00:41:50	7354	178	-20664	75	T-	pp	-0.1191	2.6347	1.6439	336.9	219.0	98.8	15S	19E
0329 Oct 24	16:57:06	7349	178	-20658	80	T	p-	0.3021	2.3421	1.2658	360.2	219.6	76.6	12N	133E
0330 Apr 19	15:16:03	7344	178	-20652	85	P	a-	-0.8500	1.2737	0.3226	267.3	119.1	-	12S	161E
0330 Oct 13	17:11:32	7340	177	-20646	90	Nx	t-	1.0095	1.0558	-0.0435	291.9	-	-	9N	129E
0331 Mar 10	23:48:37	7336	177	-20641	57	P	-a	1.0109	0.9905	0.0157	248.0	27.8	-	5N	37E

0331 Sep 03	03:01:37	7331	177	-20635	62	N	-t	-1.1881	0.6948	-0.3385	229.8	-	-	9S	15W
0332 Feb 28	11:26:22	7326	177	-20629	67	T	-a	0.3120	2.3011	1.2704	343.2	213.5	75.4	8N	137W
0332 Aug 22	14:07:46	7322	177	-20623	72	T	-p	-0.4060	2.1011	1.1248	317.0	197.9	51.8	12S	179E
0333 Feb 16	15:40:33	7317	177	-20617	77	T	t-	-0.4243	2.1213	1.0384	359.3	211.2	31.9	12N	159E
0333 Aug 12	06:09:28	7312	177	-20611	82	T	p-	0.3194	2.2461	1.2972	310.9	200.8	74.1	15S	61W
0334 Feb 05	15:14:55	7307	177	-20605	87	N	t-	-1.1275	0.8360	-0.2567	264.3	-	-	15N	166E
0334 Jul 03	13:58:29	7303	177	-20600	54	Ne	-a	-1.5312	0.0404	-0.9437	56.3	-	-	25S	179W
0334 Aug 01	22:34:52	7303	177	-20599	92	N	a-	1.0541	0.9066	-0.0591	238.6	-	-	17S	52E
0334 Dec 27	03:08:53	7299	176	-20594	59	N	-a	1.0929	0.8670	-0.1614	246.5	-	-	25N	15W
0335 Jun 22	23:01:14	7294	176	-20588	64	P	-t	-0.8302	1.3536	0.3161	305.3	129.0	-	24S	45E
0335 Dec 16	15:39:30	7289	176	-20582	69	T	-p	0.3721	2.1660	1.1844	314.5	197.6	60.8	24N	156E
0336 Jun 11	01:19:38	7284	176	-20576	74	T-	pp	-0.0731	2.7582	1.6899	374.2	235.6	105.3	23S	9E
0336 Dec 05	07:14:31	7280	176	-20570	79	T	p-	-0.2935	2.3063	1.3322	315.0	202.0	77.1	22N	80W
0337 May 31	02:25:34	7275	176	-20564	84	P	t-	0.6890	1.6196	0.5683	329.4	168.6	-	21S	8W
0337 Nov 24	21:14:35	7270	176	-20558	89	P	a-	-0.9931	1.0412	0.0304	259.4	39.3	-	20N	69E
0338 Apr 20	23:46:33	7266	176	-20553	56	N	-a	-1.2110	0.6247	-0.3530	207.3	-	-	13S	33E
0338 May 20	09:07:42	7266	176	-20552	94	N	a-	1.4080	0.2748	-0.7257	146.8	-	-	19S	108W
0338 Oct 15	12:17:15	7262	176	-20547	61	N	-t	1.2023	0.6954	-0.3909	241.9	-	-	10N	158W
0339 Apr 10	15:24:19	7257	175	-20541	66	T	-a	-0.4520	2.0024	1.0546	304.2	190.0	34.3	8S	159E
0339 Oct 04	11:49:20	7252	175	-20535	71	P	-t	0.5214	1.9489	0.8547	356.2	199.7	-	5N	150W
0340 Mar 30	08:09:11	7247	175	-20529	76	T+	p-	0.2696	2.3436	1.3825	318.0	206.0	82.4	4S	91W
0340 Sep 22	13:48:35	7243	175	-20523	81	T-	p-	-0.2016	2.5145	1.4621	356.0	223.3	92.7	0S	179W
0341 Mar 19	21:22:12	7238	175	-20517	86	N	h-	1.0409	0.9539	-0.0576	256.2	-	-	1N	72E
0341 Sep 11	23:04:24	7233	175	-20511	91	P	a-	-0.9053	1.1933	0.2005	271.4	98.2	-	5S	43E
0342 Feb 07	10:41:05	7229	175	-20506	58	N	-t	-1.0950	0.8958	-0.1973	272.2	-	-	14N	126W
0342 Aug 03	06:17:13	7225	175	-20500	63	P	-a	0.9851	1.0241	0.0764	244.8	59.6	-	17S	63W
0343 Jan 27	10:10:08	7220	174	-20494	68	T	-p	-0.3973	2.1731	1.0858	361.0	213.6	46.8	18N	118W
0343 Jul 23	22:03:20	7215	174	-20488	73	T	-p	0.2728	2.3454	1.3692	325.7	209.4	82.7	20S	60E
0344 Jan 16	14:20:34	7210	174	-20482	78	T	p-	0.3179	2.2944	1.2553	342.8	212.1	73.3	21N	178E
0344 Jul 12	08:30:37	7206	174	-20476	83	P	t-	-0.5073	1.9415	0.9129	335.7	196.6	-	23S	97W
0345 Jan 05	01:38:14	7201	174	-20470	88	P	a-	0.9837	1.0471	0.0590	253.5	53.4	-	24N	8E
0345 Jun 01	21:02:53	7197	174	-20465	55	Ne	-t	1.5406	0.0659	-1.0027	79.6	-	-	21S	73E
0345 Jul 01	11:55:46	7196	174	-20464	93	N	t-	-1.3018	0.5031	-0.5637	210.4	-	-	25S	149W
0345 Nov 26	06:13:12	7192	174	-20459	60	N	-a	-1.0643	0.8953	-0.0852	235.5	-	-	20N	65W
0346 May 21	23:09:59	7188	174	-20453	65	P	-t	0.7554	1.4917	0.4525	316.1	151.4	-	20S	41E
0346 Nov 15	18:57:48	7183	174	-20447	70	T	-a	-0.4147	2.1104	1.0840	331.0	200.9	43.9	19N	103E
0347 May 11	07:53:27	7178	173	-20441	75	T-	pp	-0.0457	2.7669	1.7810	336.1	219.7	101.5	18S	90W
0347 Nov 05	00:59:26	7173	173	-20435	80	T	p-	0.2901	2.3666	1.2857	362.1	220.9	78.9	16N	11E
0348 Apr 29	22:49:52	7169	173	-20429	85	P	a-	-0.7832	1.3946	0.4468	275.2	137.4	-	16S	46E
0348 Oct 24	00:55:49	7164	173	-20423	90	Nx	t-	0.9892	1.0943	-0.0075	296.2	-	-	13N	12E

0349	Mar 21	07:41:57	7160	173	-20418	57	N	-a	1.0597	0.9008	-0.0736	239.3	-	-	1N	83W
0349	Apr 19	15:55:30	7159	173	-20417	95	N	a-	-1.4958	0.0884	-0.8620	79.3	-	-	13S	150E
0349	Sep 13	10:41:54	7155	173	-20412	62	N	-h	-1.2246	0.6278	-0.4054	219.1	-	-	5S	131W
0350	Mar 10	19:06:34	7150	173	-20406	67	T	-a	0.3553	2.2215	1.1907	342.2	210.8	65.3	4N	106E
0350	Sep 02	22:01:32	7146	173	-20400	72	T	-a	-0.4506	2.0194	1.0427	313.5	193.0	31.0	8S	59E
0351	Feb 27	23:05:22	7141	173	-20394	77	T	t-	-0.3853	2.1920	1.1107	362.1	215.7	52.9	8N	47E
0351	Aug 23	14:03:45	7136	172	-20388	82	T+	p-	0.2679	2.3420	1.3906	313.1	203.8	82.2	11S	179E
0352	Feb 16	22:45:02	7131	172	-20382	87	N	t-	-1.0940	0.8952	-0.1930	271.2	-	-	11N	52E
0352	Aug 12	06:13:22	7127	172	-20376	92	P	a-	0.9997	1.0089	0.0382	249.8	43.3	-	14S	63W
0353	Jan 06	11:37:36	7123	172	-20371	59	N	-a	1.0961	0.8589	-0.1650	244.6	-	-	24N	142W
0353	Jul 03	05:42:51	7118	172	-20365	64	P	-t	-0.9127	1.2043	0.1626	294.0	94.9	-	24S	56W
0353	Dec 27	00:27:35	7113	172	-20359	69	T	-p	0.3750	2.1594	1.1802	313.7	197.2	60.1	24N	24E
0354	Jun 22	07:40:54	7109	172	-20353	74	T-	pp	-0.1612	2.5971	1.5277	372.9	233.1	99.6	24S	86W
0354	Dec 16	16:07:37	7104	172	-20347	79	T	p-	-0.2925	2.3085	1.3338	315.3	202.2	77.3	23N	148E
0355	Jun 11	08:56:06	7099	172	-20341	84	P	t-	0.6014	1.7790	0.7303	337.5	185.6	-	23S	106W
0355	Dec 06	05:55:40	7094	171	-20335	89	P	a-	-0.9953	1.0388	0.0249	260.1	35.7	-	22N	61W
0356	May 01	07:07:28	7090	171	-20330	56	N	-a	-1.2742	0.5063	-0.4665	188.1	-	-	16S	79W
0356	May 30	16:07:30	7090	171	-20329	94	N	a-	1.3269	0.4215	-0.5749	178.5	-	-	21S	146E
0356	Oct 25	20:09:12	7086	171	-20324	61	N	-t	1.2205	0.6644	-0.4264	237.9	-	-	14N	83E
0357	Apr 20	23:04:07	7081	171	-20318	66	P	-a	-0.5138	1.8876	0.9426	299.6	183.3	-	12S	43E
0357	Oct 14	19:28:54	7076	171	-20312	71	P	-t	0.5452	1.9061	0.8099	354.1	195.7	-	9N	94E
0358	Apr 10	15:52:45	7071	171	-20306	76	T+	p-	0.2139	2.4456	1.4850	320.5	209.3	89.5	8S	151E
0358	Oct 03	21:38:04	7067	171	-20300	81	T-	p-	-0.1721	2.5687	1.5162	355.7	223.9	95.5	4N	62E
0359	Mar 31	04:53:01	7062	171	-20294	86	P	h-	0.9925	1.0430	0.0311	266.3	40.7	-	3S	43W
0359	Sep 23	07:09:27	7057	171	-20288	91	P	a-	-0.8702	1.2577	0.2647	275.8	111.5	-	1S	80W
0360	Feb 18	18:10:35	7053	170	-20283	58	N	-t	-1.1281	0.8339	-0.2568	264.3	-	-	11N	121E
0360	Aug 13	14:04:17	7048	170	-20277	63	N	-a	1.0408	0.9235	-0.0274	235.3	-	-	14S	179E
0360	Sep 11	22:17:07	7048	170	-20276	101	N	a-	-1.5181	0.0514	-0.9066	60.5	-	-	6S	54E
0361	Feb 06	17:52:59	7044	170	-20271	68	T	-t	-0.4212	2.1267	1.0444	358.2	210.8	34.0	15N	125E
0361	Aug 03	05:31:34	7039	170	-20265	73	T	-a	0.3363	2.2317	1.2502	324.5	205.6	71.1	17S	53W
0362	Jan 26	22:33:10	7034	170	-20259	78	T	p-	0.3016	2.3216	1.2880	341.9	212.8	76.8	19N	55E
0362	Jul 23	15:26:51	7029	170	-20253	83	T	t-	-0.4364	2.0744	1.0404	342.5	205.6	31.9	21S	158E
0363	Jan 16	10:16:52	7025	170	-20247	88	P	a-	0.9729	1.0649	0.0807	254.4	62.2	-	22N	121W
0363	Jul 12	18:23:53	7020	170	-20241	93	N	t-	-1.2217	0.6515	-0.4182	236.5	-	-	23S	114E
0363	Dec 07	15:03:42	7016	170	-20236	60	N	-a	-1.0680	0.8895	-0.0928	235.4	-	-	22N	162E
0364	Jun 01	05:49:06	7011	169	-20230	65	P	-t	0.8361	1.3417	0.3061	303.8	126.9	-	21S	59W
0364	Nov 26	03:30:51	7006	169	-20224	70	T	-a	-0.4191	2.1043	1.0741	332.1	200.9	41.5	21N	26W
0365	May 21	15:02:40	7002	169	-20218	75	T+	pp	0.0305	2.7927	1.8111	334.6	219.3	101.7	20S	162E
0365	Nov 15	09:06:32	6997	169	-20212	80	T	p-	0.2827	2.3821	1.2973	363.6	221.7	80.3	19N	111W
0366	May 11	06:19:24	6992	169	-20206	85	P	a-	-0.7124	1.5232	0.5781	282.7	153.0	-	19S	68W

0366	Nov 04	08:46:55	6987	169	-20200	90	P	t-	0.9742	1.1228	0.0190	299.2	34.1	-	17N	106W
0367	Apr 01	15:26:37	6983	169	-20195	57	N	-a	1.1150	0.7992	-0.1750	228.4	-	-	4S	159E
0367	Apr 30	23:28:46	6983	169	-20194	95	N	a-	-1.4342	0.2012	-0.7488	118.6	-	-	16S	35E
0367	Sep 24	18:31:57	6979	169	-20189	62	N	-h	-1.2541	0.5736	-0.4596	209.9	-	-	0S	110E
0368	Mar 21	02:35:26	6974	169	-20183	67	T	-a	0.4072	2.1264	1.0955	340.4	206.6	47.8	0S	8W
0368	Sep 13	06:04:33	6969	168	-20177	72	P	-a	-0.4881	1.9510	0.9736	310.3	188.4	-	4S	63W
0369	Mar 10	06:20:23	6964	168	-20171	77	T	p-	-0.3388	2.2764	1.1971	365.1	220.4	68.7	4N	63W
0369	Sep 02	22:05:31	6960	168	-20165	82	T+	p-	0.2227	2.4263	1.4719	314.9	206.0	87.5	8S	57E
0370	Feb 27	06:08:26	6955	168	-20159	87	N	t-	-1.0546	0.9651	-0.1183	278.9	-	-	7N	60W
0370	Aug 23	13:57:48	6950	168	-20153	92	P	a-	0.9508	1.1013	0.1253	259.4	77.6	-	11S	179E
0371	Jan 17	20:03:57	6946	168	-20148	59	N	-a	1.1019	0.8457	-0.1732	242.0	-	-	22N	92E
0371	Jul 14	12:25:20	6941	168	-20142	64	P	-t	-0.9935	1.0585	0.0121	281.1	26.5	-	23S	157W
0372	Jan 07	09:14:05	6936	168	-20136	69	T	-p	0.3797	2.1494	1.1730	312.7	196.6	59.0	23N	107W
0372	Jul 02	14:04:20	6932	168	-20130	74	T-	pp	-0.2477	2.4392	1.3685	370.4	228.8	88.9	23S	178E
0372	Dec 27	00:57:59	6927	167	-20124	79	T	p-	-0.2894	2.3142	1.3394	315.8	202.6	77.9	23N	16E
0373	Jun 21	15:30:53	6922	167	-20118	84	P	t-	0.5163	1.9341	0.8876	343.8	198.5	-	23S	156E
0373	Dec 16	14:35:00	6917	167	-20112	89	P	a-	-0.9963	1.0382	0.0218	260.9	33.5	-	23N	170E
0374	May 12	14:27:10	6913	167	-20107	56	N	-a	-1.3388	0.3856	-0.5829	165.4	-	-	20S	170E
0374	Jun 10	23:10:08	6913	167	-20106	94	N	a-	1.2469	0.5664	-0.4264	203.2	-	-	22S	40E
0374	Nov 06	04:05:22	6909	167	-20101	61	N	-t	1.2348	0.6400	-0.4546	234.6	-	-	17N	36W
0375	May 02	06:39:45	6904	167	-20095	66	P	-a	-0.5793	1.7661	0.8233	294.1	174.8	-	16S	73W
0375	Oct 26	03:16:17	6899	167	-20089	71	P	-t	0.5629	1.8744	0.7767	352.3	192.6	-	13N	24W
0376	Apr 20	23:27:18	6894	167	-20083	76	T+	pp	0.1511	2.5608	1.6001	322.7	212.2	95.1	12S	36E
0376	Oct 14	05:38:18	6890	167	-20077	81	T-	p-	-0.1506	2.6079	1.5557	355.2	224.0	97.1	8N	59W
0377	Apr 10	12:13:23	6885	167	-20071	86	P	t-	0.9362	1.1467	0.1340	277.1	83.6	-	7S	154W
0377	Oct 03	15:24:48	6880	166	-20065	91	P	a-	-0.8430	1.3078	0.3147	278.9	120.4	-	4N	155E
0378	Mar 01	01:29:50	6876	166	-20060	58	N	-t	-1.1690	0.7576	-0.3305	253.9	-	-	6N	9E
0378	Aug 24	21:59:03	6871	166	-20054	63	N	-a	1.0901	0.8348	-0.1197	226.2	-	-	10S	59E
0378	Sep 23	06:34:37	6871	166	-20053	101	N	a-	-1.4869	0.1098	-0.8506	87.9	-	-	1S	71W
0379	Feb 18	01:28:37	6867	166	-20048	68	P	-t	-0.4514	2.0685	0.9915	354.8	207.1	-	11N	10E
0379	Aug 14	13:03:57	6862	166	-20042	73	T	-a	0.3954	2.1261	1.1389	323.0	201.1	55.0	14S	167W
0380	Feb 07	06:41:15	6857	166	-20036	78	T	p-	0.2808	2.3567	1.3292	341.1	213.8	80.8	16N	67W
0380	Aug 02	22:26:26	6852	166	-20030	83	T	p-	-0.3692	2.2006	1.1608	348.3	212.8	61.5	18S	53E
0381	Jan 26	18:50:40	6847	166	-20024	88	P	a-	0.9579	1.0903	0.1104	256.0	72.3	-	19N	110E
0381	Jul 23	00:56:40	6843	166	-20018	93	N	t-	-1.1452	0.7933	-0.2794	257.8	-	-	21S	15E
0381	Dec 17	23:54:32	6839	165	-20013	60	N	-a	-1.0709	0.8848	-0.0989	235.3	-	-	23N	30E
0382	Jun 12	12:30:18	6834	165	-20007	65	P	-t	0.9160	1.1937	0.1613	290.2	93.8	-	22S	160W
0382	Dec 07	12:04:42	6829	165	-20001	70	T	-a	-0.4220	2.1005	1.0670	333.3	201.1	39.6	23N	154W
0383	Jun 01	22:12:27	6824	165	-19995	75	T+	pp	0.1072	2.6501	1.6724	332.4	217.5	99.1	22S	54E
0383	Nov 26	17:15:42	6820	165	-19989	80	T	p-	0.2772	2.3937	1.3058	365.0	222.5	81.2	22N	127E

0384	May 21	13:46:21	6815	165	-19983	85	P	a-	-0.6388	1.6571	0.7140	289.6	166.2	-	21S	180E
0384	Nov 14	16:43:13	6810	165	-19977	90	P	t-	0.9631	1.1438	0.0389	301.3	48.5	-	20N	134E
0385	Apr 11	23:03:46	6806	165	-19972	57	N	-a	1.1759	0.6875	-0.2869	214.8	-	-	8S	43E
0385	May 11	06:58:16	6805	165	-19971	95	N	a-	-1.3697	0.3198	-0.6306	148.2	-	-	19S	78W
0385	Oct 05	02:31:41	6801	165	-19966	62	N	-h	-1.2767	0.5320	-0.5009	202.3	-	-	4N	12W
0386	Apr 01	09:55:26	6797	164	-19960	67	P	-h	0.4655	2.0197	0.9884	337.8	200.9	-	4S	119W
0386	Sep 24	14:16:52	6792	164	-19954	72	P	-a	-0.5185	1.8956	0.9175	307.5	184.3	-	0N	172E
0387	Mar 21	13:25:00	6787	164	-19948	77	T	pp	-0.2839	2.3761	1.2986	367.9	225.1	81.7	1S	171W
0387	Sep 14	06:15:11	6782	164	-19942	82	T+	p-	0.1841	2.4987	1.5412	316.3	207.6	91.1	3S	67W
0388	Mar 09	13:22:07	6777	164	-19936	87	Nx	t-	-1.0065	1.0507	-0.0276	287.6	-	-	3N	170W
0388	Sep 02	21:50:02	6773	164	-19930	92	P	a-	0.9086	1.1815	0.1999	267.4	97.3	-	7S	60E
0389	Jan 28	04:23:20	6769	164	-19925	59	N	-a	1.1144	0.8200	-0.1933	237.9	-	-	19N	33W
0389	Jul 24	19:12:27	6764	164	-19919	64	N	-t	-1.0696	0.9215	-0.1300	267.2	-	-	21S	101E
0390	Jan 17	17:56:03	6759	164	-19913	69	T	-p	0.3890	2.1307	1.1575	311.5	195.7	56.5	21N	123E
0390	Jul 13	20:31:01	6754	163	-19907	74	T	-t	-0.3314	2.2864	1.2139	366.9	222.7	71.7	22S	81E
0391	Jan 07	09:45:53	6749	163	-19901	79	T	p-	-0.2843	2.3235	1.3489	316.4	203.2	78.8	22N	116W
0391	Jul 02	22:08:18	6745	163	-19895	84	T	t-	0.4319	2.0881	1.0433	348.9	208.6	33.5	23S	56E
0391	Dec 27	23:12:51	6740	163	-19889	89	P	a-	-0.9970	1.0380	0.0197	261.8	31.9	-	22N	41E
0392	May 22	21:43:19	6736	163	-19884	56	N	-a	-1.4069	0.2588	-0.7060	136.6	-	-	22S	60E
0392	Jun 21	06:13:37	6735	163	-19883	94	N	a-	1.1663	0.7129	-0.2769	223.8	-	-	23S	66W
0392	Nov 16	12:07:20	6731	163	-19878	61	N	-t	1.2440	0.6247	-0.4730	232.6	-	-	20N	157W
0393	May 12	14:11:32	6726	163	-19872	66	P	-a	-0.6483	1.6387	0.6976	287.7	164.3	-	19S	173E
0393	Nov 05	11:10:29	6722	163	-19866	71	P	-t	0.5754	1.8519	0.7533	350.9	190.3	-	17N	143W
0394	May 02	06:57:26	6717	163	-19860	76	T+	pp	0.0851	2.6823	1.7211	324.6	214.3	98.9	15S	78W
0394	Oct 25	13:46:50	6712	162	-19854	81	T-	p-	-0.1350	2.6363	1.5846	354.4	223.9	98.0	12N	178E
0395	Apr 21	19:26:06	6707	162	-19848	86	P	t-	0.8743	1.2607	0.2469	288.0	112.0	-	11S	96E
0395	Oct 14	23:47:51	6702	162	-19842	91	P	a-	-0.8215	1.3473	0.3541	281.1	126.6	-	8N	28E
0396	Mar 11	08:40:21	6698	162	-19837	58	N	-t	-1.2165	0.6688	-0.4164	240.6	-	-	2N	100W
0396	Sep 04	06:00:58	6694	162	-19831	63	N	-a	1.1333	0.7576	-0.2007	217.6	-	-	6S	63W
0396	Oct 03	14:59:41	6693	162	-19830	101	N	a-	-1.4620	0.1566	-0.8061	104.5	-	-	3N	161E
0397	Feb 28	08:55:55	6689	162	-19825	68	P	-t	-0.4890	1.9967	0.9253	350.7	202.2	-	7N	103W
0397	Aug 24	20:43:38	6684	162	-19819	73	T	-a	0.4475	2.0334	1.0402	321.4	196.4	30.6	11S	77E
0398	Feb 17	14:42:21	6679	162	-19813	78	T+	p-	0.2534	2.4037	1.3824	340.4	215.0	85.2	12N	171E
0398	Aug 14	05:31:15	6675	162	-19807	83	T	p-	-0.3071	2.3176	1.2719	353.2	218.3	77.1	15S	54W
0399	Feb 07	03:18:03	6670	162	-19801	88	P	a-	0.9373	1.1257	0.1503	258.4	83.7	-	16N	17W
0399	Aug 03	07:35:19	6665	161	-19795	93	N	t-	-1.0734	0.9269	-0.1492	275.3	-	-	19S	85W
0399	Dec 29	08:42:08	6661	161	-19790	60	N	-a	-1.0766	0.8748	-0.1097	234.7	-	-	22N	101W
0400	Jun 22	19:13:32	6656	161	-19784	65	P	-t	0.9948	1.0476	0.0179	275.1	31.8	-	23S	99E
0400	Dec 17	20:37:09	6651	161	-19778	70	T	-a	-0.4256	2.0953	1.0592	334.3	201.2	37.4	23N	79E

5TH CENTURY CE

In the 5th century CE the total number of lunar eclipses was 244 lunar eclipses: 83 penumbral lunar eclipses, 95 partial lunar eclipses, 66 total lunar eclipses (48 central total lunar eclipses, 18 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
ECLIPSE															
0401 Jun 12	05:23:19	6647	161	-19772	75	T+	pp	0.1839	2.5078	1.5331	329.5	214.6	93.6	23S	54W
0401 Dec 07	01:25:21	6642	161	-19766	80	T	p-	0.2726	2.4033	1.3130	366.2	223.1	82.1	23N	5E
0402 Jun 01	21:12:18	6637	161	-19760	85	P	a-	-0.5642	1.7934	0.8517	295.7	177.2	-	23S	68E
0402 Nov 26	00:44:23	6632	161	-19754	90	P	t-	0.9557	1.1576	0.0522	302.5	56.1	-	22N	14E
0403 Apr 23	06:32:13	6628	161	-19749	57	N	-a	1.2432	0.5643	-0.4107	197.6	-	-	11S	71W
0403 May 22	14:22:05	6627	161	-19748	95	N	a-	-1.3010	0.4463	-0.5049	173.3	-	-	22S	170E
0403 Oct 16	10:41:00	6623	160	-19743	62	N	-h	-1.2925	0.5029	-0.5297	196.6	-	-	8N	135W
0404 Apr 11	17:05:30	6619	160	-19737	67	P	-t	0.5309	1.8999	0.8680	334.0	193.1	-	8S	131E
0404 Oct 04	22:38:10	6614	160	-19731	72	P	-a	-0.5422	1.8525	0.8737	305.1	180.9	-	5N	46E
0405 Mar 31	20:20:26	6609	160	-19725	77	T-	pp	-0.2217	2.4892	1.4137	370.6	229.3	92.1	5S	83E
0405 Sep 24	14:33:09	6604	160	-19719	82	T+	p-	0.1525	2.5584	1.5977	317.4	208.6	93.4	1N	167E
0406 Mar 20	20:29:44	6600	160	-19713	87	P	t-	-0.9527	1.1469	0.0737	296.5	65.9	-	1S	82E
0406 Sep 14	05:47:46	6595	160	-19707	92	P	a-	0.8715	1.2525	0.2652	274.2	111.3	-	3S	61W
0407 Feb 08	12:38:44	6591	160	-19702	59	N	-a	1.1310	0.7867	-0.2209	232.9	-	-	16N	157W
0407 Aug 05	02:03:35	6586	160	-19696	64	N	-t	-1.1416	0.7919	-0.2647	251.9	-	-	18S	2W
0408 Jan 29	02:32:32	6581	159	-19690	69	T	-p	0.4031	2.1031	1.1334	310.1	194.4	52.4	18N	6W
0408 Jul 24	03:03:28	6576	159	-19684	74	T	-t	-0.4105	2.1424	1.0679	362.6	215.0	42.4	20S	17W
0409 Jan 17	18:28:09	6572	159	-19678	79	T	p-	-0.2747	2.3408	1.3667	317.1	204.0	80.4	20N	114E
0409 Jul 13	04:53:03	6567	159	-19672	84	T	t-	0.3526	2.2328	1.1894	352.4	215.8	66.6	22S	45W
0410 Jan 07	07:45:00	6562	159	-19666	89	P	a-	-0.9935	1.0451	0.0252	263.3	36.2	-	21N	86W
0410 Jun 03	05:01:15	6558	159	-19661	56	N	-a	-1.4742	0.1337	-0.8280	99.0	-	-	24S	49W

0410 Jul 02	13:23:04	6557	159	-19660	94	N	a-	1.0892	0.8531	-0.1343	240.4	-	-	22S	174W
0410 Nov 27	20:11:05	6553	159	-19655	61	N	-t	1.2516	0.6120	-0.4880	231.0	-	-	23N	82E
0411 May 23	21:39:42	6548	159	-19649	66	P	-a	-0.7205	1.5058	0.5657	280.2	151.0	-	22S	61E
0411 Nov 16	19:10:38	6544	159	-19643	71	P	-t	0.5835	1.8372	0.7384	349.7	188.6	-	20N	97E
0412 May 12	14:20:50	6539	159	-19637	76	T+	pp	0.0136	2.8141	1.8517	326.1	215.5	100.6	18S	170E
0412 Nov 04	22:03:09	6534	158	-19631	81	T-	p-	-0.1250	2.6541	1.6035	353.4	223.6	98.4	16N	53E
0413 May 02	02:30:05	6529	158	-19625	86	P	t-	0.8060	1.3870	0.3716	298.9	135.4	-	15S	11W
0413 Oct 25	08:19:46	6524	158	-19619	91	P	a-	-0.8065	1.3748	0.3817	282.3	130.6	-	12N	101W
0414 Mar 22	15:41:05	6520	158	-19614	58	N	-t	-1.2714	0.5666	-0.5157	223.6	-	-	2S	153E
0414 Sep 15	14:09:57	6516	158	-19608	63	N	-a	1.1706	0.6912	-0.2712	209.6	-	-	2S	173E
0414 Oct 14	23:32:06	6515	158	-19607	101	N	a-	-1.4430	0.1926	-0.7724	115.5	-	-	7N	31E
0415 Mar 11	16:15:56	6511	158	-19602	68	P	-t	-0.5332	1.9127	0.8472	345.6	195.8	-	3N	146E
0415 Sep 05	04:29:15	6506	158	-19596	73	P	-a	0.4939	1.9515	0.9521	319.8	191.4	-	6S	41W
0416 Feb 28	22:36:00	6501	158	-19590	78	T+	p-	0.2191	2.4635	1.4486	339.8	216.3	89.8	8N	52E
0416 Aug 24	12:42:22	6496	158	-19584	83	T-	pp	-0.2508	2.4239	1.3720	357.2	222.5	87.0	11S	163W
0417 Feb 17	11:39:14	6492	157	-19578	88	P	a-	0.9114	1.1711	0.2002	261.5	95.8	-	12N	143W
0417 Aug 13	14:20:49	6487	157	-19572	93	Nx	t-	-1.0066	1.0511	-0.0284	289.8	-	-	16S	173E
0418 Jan 08	17:26:27	6483	157	-19567	60	N	-a	-1.0848	0.8600	-0.1249	233.5	-	-	21N	128E
0418 Jul 04	02:02:05	6478	157	-19561	65	N	-t	1.0700	0.9085	-0.1189	259.0	-	-	22S	3W
0418 Dec 29	05:07:33	6473	157	-19555	70	T	-a	-0.4301	2.0881	1.0499	335.2	201.2	34.5	23N	48W
0419 Jun 23	12:35:59	6468	157	-19549	75	T+	-p	0.2599	2.3671	1.3949	325.9	210.4	84.8	23S	162W
0419 Dec 18	09:34:31	6464	157	-19543	80	T+	p-	0.2683	2.4121	1.3201	367.3	223.8	82.9	24N	116W
0420 Jun 12	04:38:24	6459	157	-19537	85	P	a-	-0.4895	1.9300	0.9890	301.0	186.3	-	24S	44W
0420 Dec 06	08:46:14	6454	157	-19531	90	P	t-	0.9488	1.1701	0.0651	303.5	62.5	-	24N	106W
0421 May 03	13:55:02	6450	156	-19526	57	N	-a	1.3142	0.4346	-0.5417	176.2	-	-	15S	177E
0421 Jun 01	21:44:51	6449	156	-19525	95	N	a-	-1.2318	0.5741	-0.3787	194.6	-	-	24S	59E
0421 Oct 26	18:58:30	6445	156	-19520	62	N	-a	-1.3024	0.4844	-0.5473	192.7	-	-	12N	99E
0422 Apr 23	00:07:59	6440	156	-19514	67	P	-t	0.6017	1.7705	0.7377	328.9	182.7	-	12S	24E
0422 Oct 16	07:06:41	6436	156	-19508	72	P	-a	-0.5604	1.8194	0.8400	303.1	178.0	-	9N	83W
0423 Apr 12	03:07:01	6431	156	-19502	77	T-	pp	-0.1526	2.6151	1.5413	372.7	232.8	99.9	9S	20W
0423 Oct 05	22:58:50	6426	156	-19496	82	T+	p-	0.1273	2.6062	1.6423	318.3	209.3	94.9	5N	39E
0424 Mar 31	03:27:10	6421	156	-19490	87	P	t-	-0.8898	1.2597	0.1916	306.0	104.3	-	5S	25W
0424 Sep 24	13:54:30	6416	156	-19484	92	P	a-	0.8423	1.3090	0.3159	279.6	120.9	-	2N	176E
0425 Feb 18	20:45:58	6413	156	-19479	59	N	-a	1.1549	0.7398	-0.2619	225.9	-	-	12N	80E
0425 Aug 15	09:01:25	6408	156	-19473	64	N	-t	-1.2070	0.6747	-0.3875	236.1	-	-	15S	108W
0426 Feb 08	11:02:13	6403	155	-19467	69	T	-p	0.4232	2.0644	1.0983	308.2	192.5	45.4	15N	134W
0426 Aug 04	09:42:45	6398	155	-19461	74	P	-t	-0.4839	2.0088	0.9321	357.5	206.0	-	18S	118W
0427 Jan 29	03:05:18	6393	155	-19455	79	T-	p-	-0.2612	2.3651	1.3919	318.0	205.1	82.5	18N	16W
0427 Jul 24	11:42:31	6389	155	-19449	84	T	t-	0.2762	2.3726	1.3301	354.9	221.0	83.4	20S	148W
0428 Jan 18	16:13:03	6384	155	-19443	89	P	a-	-0.9875	1.0566	0.0357	265.3	43.1	-	20N	147E

0428 Jun 13	12:18:30	6380	155	-19438	56	Ne	-a	-1.5427	0.0068	-0.9525	22.5	-	-	25S	159W
0428 Jul 12	20:36:19	6379	155	-19437	94	P	a-	1.0140	0.9903	0.0046	254.3	15.4	-	21S	78E
0428 Dec 08	04:16:16	6375	155	-19432	61	N	-t	1.2575	0.6019	-0.4996	229.7	-	-	24N	38W
0429 Jun 03	05:06:47	6370	155	-19426	66	P	-a	-0.7936	1.3715	0.4318	271.7	134.7	-	23S	51W
0429 Nov 27	03:15:18	6365	155	-19420	71	P	-t	0.5885	1.8277	0.7295	348.7	187.5	-	22N	24W
0430 May 23	21:41:00	6361	154	-19414	76	T-	pp	-0.0598	2.7300	1.7660	326.9	215.7	100.1	21S	60E
0430 Nov 16	06:24:40	6356	154	-19408	81	T-	p-	-0.1185	2.6653	1.6163	352.3	223.2	98.6	19N	73W
0431 May 13	09:28:48	6351	154	-19402	86	P	t-	0.7340	1.5200	0.5027	309.3	154.9	-	18S	117W
0431 Nov 05	16:57:16	6346	154	-19396	91	P	a-	-0.7959	1.3938	0.4013	282.9	133.2	-	15N	129E
0432 Apr 01	22:32:46	6342	154	-19391	58	N	-t	-1.3330	0.4522	-0.6271	201.8	-	-	6S	49E
0432 May 01	14:00:38	6341	154	-19390	96	Nb	t-	1.5388	0.0669	-0.9974	79.5	-	-	14S	175E
0432 Sep 25	22:26:56	6337	154	-19385	63	N	-a	1.2010	0.6375	-0.3290	202.8	-	-	3N	47E
0432 Oct 25	08:11:11	6337	154	-19384	101	N	a-	-1.4297	0.2181	-0.7490	122.7	-	-	11N	100W
0433 Mar 21	23:28:27	6333	154	-19379	68	P	-t	-0.5839	1.8168	0.7571	339.6	187.6	-	1S	36E
0433 Sep 15	12:22:04	6328	154	-19373	73	P	-a	0.5334	1.8822	0.8766	318.5	186.7	-	2S	161W
0434 Mar 11	06:22:47	6323	154	-19367	78	T+	p-	0.1782	2.5353	1.5267	339.2	217.7	94.1	4N	67W
0434 Sep 04	20:01:02	6318	154	-19361	83	T-	pp	-0.2016	2.5173	1.4592	360.6	225.6	93.4	7S	86E
0435 Feb 28	19:52:15	6313	153	-19355	88	P	a-	0.8784	1.2292	0.2629	265.4	108.6	-	8N	92E
0435 Aug 24	21:14:25	6309	153	-19349	93	P	t-	-0.9462	1.1637	0.0806	301.7	69.5	-	12S	68E
0436 Jan 20	02:04:53	6305	153	-19344	60	N	-a	-1.0972	0.8372	-0.1478	231.4	-	-	19N	1W
0436 Feb 18	12:09:34	6304	153	-19343	98	Nb	a-	1.5444	0.0055	-0.9574	19.9	-	-	13N	152W
0436 Jul 14	08:56:20	6300	153	-19338	65	N	-t	1.1410	0.7775	-0.2482	241.9	-	-	21S	107W
0437 Jan 08	13:32:00	6295	153	-19332	70	T	-a	-0.4386	2.0733	1.0336	335.9	200.9	28.6	22N	174W
0437 Jul 03	19:53:06	6290	153	-19326	75	T	-p	0.3327	2.2325	1.2622	321.7	205.1	72.2	23S	88E
0437 Dec 28	17:41:13	6285	153	-19320	80	T+	p-	0.2628	2.4225	1.3297	368.3	224.5	84.0	24N	122E
0438 Jun 23	12:04:50	6281	153	-19314	85	T	a-	-0.4150	2.0666	1.1257	305.6	193.7	51.1	24S	155W
0438 Dec 17	16:49:41	6276	153	-19308	90	P	t-	0.9429	1.1804	0.0765	304.2	67.6	-	24N	134E
0439 May 14	21:11:23	6272	152	-19303	57	N	-a	1.3894	0.2975	-0.6805	148.2	-	-	18S	67E
0439 Jun 13	05:04:46	6271	152	-19302	95	N	a-	-1.1608	0.7053	-0.2496	213.5	-	-	25S	51W
0439 Nov 07	03:23:37	6267	152	-19297	62	N	-a	-1.3072	0.4750	-0.5556	190.4	-	-	16N	28W
0439 Dec 06	18:28:29	6266	152	-19296	100	N	a-	1.5722	0.0055	-1.0585	22.3	-	-	24N	107E
0440 May 03	07:01:29	6262	152	-19291	67	P	-t	0.6789	1.6295	0.5953	322.2	168.6	-	15S	80W
0440 Oct 26	15:43:18	6257	152	-19285	72	P	-a	-0.5725	1.7974	0.8176	301.6	176.0	-	13N	147E
0441 Apr 22	09:46:38	6253	152	-19279	77	T-	pp	-0.0780	2.7513	1.6790	374.2	235.1	104.8	13S	121W
0441 Oct 16	07:31:06	6248	152	-19273	82	T+	p-	0.1077	2.6437	1.6766	319.1	209.8	95.9	10N	90W
0442 Apr 11	10:20:08	6243	152	-19267	87	P	t-	-0.8224	1.3808	0.3177	315.0	131.6	-	9S	129W
0442 Oct 05	22:07:19	6238	152	-19261	92	P	a-	0.8188	1.3549	0.3562	284.2	127.9	-	6N	51E
0443 Mar 02	04:47:02	6234	152	-19256	59	N	-a	1.1845	0.6824	-0.3132	217.3	-	-	8N	42W
0443 Mar 31	15:52:55	6233	152	-19255	97	N	a-	-1.5145	0.0872	-0.9286	84.9	-	-	6S	148E
0443 Aug 26	16:05:00	6229	152	-19250	64	N	-t	-1.2670	0.5675	-0.5002	219.6	-	-	11S	145E

0444	Feb 19	19:25:07	6225	151	-19244	69	T	-a	0.4493	2.0146	1.0523	306.0	189.9	33.6	11N	99E
0444	Aug 14	16:30:16	6220	151	-19238	74	P	-t	-0.5508	1.8872	0.8081	352.1	196.0	-	15S	139E
0445	Feb 08	11:33:45	6215	151	-19232	79	T-	p-	-0.2407	2.4023	1.4300	319.1	206.6	85.4	14N	143W
0445	Aug 03	18:41:41	6210	151	-19226	84	T+	p-	0.2066	2.5000	1.4581	356.2	224.4	93.2	17S	106E
0446	Jan 29	00:33:01	6205	151	-19220	89	P	a-	-0.9754	1.0792	0.0576	268.3	54.8	-	17N	21E
0446	Jul 24	03:56:02	6201	151	-19214	94	P	a-	0.9430	1.1199	0.1356	265.8	81.9	-	19S	33W
0446	Dec 19	12:19:47	6197	151	-19209	61	N	-t	1.2645	0.5894	-0.5128	227.9	-	-	25N	159W
0447	Jun 14	12:32:53	6192	151	-19203	66	P	-a	-0.8676	1.2358	0.2957	262.1	113.7	-	24S	163W
0447	Dec 08	11:21:26	6187	151	-19197	71	P	-t	0.5925	1.8196	0.7228	347.6	186.6	-	24N	146W
0448	Jun 03	04:56:39	6182	150	-19191	76	T-	-p	-0.1364	2.5907	1.6243	327.0	214.7	96.8	23S	50W
0448	Nov 26	14:51:03	6178	150	-19185	81	T-	p-	-0.1151	2.6704	1.6235	351.1	222.7	98.7	21N	161E
0449	May 23	16:21:41	6173	150	-19179	86	P	t-	0.6579	1.6608	0.6409	319.1	171.6	-	20S	139E
0449	Nov 16	01:39:59	6168	150	-19173	91	P	a-	-0.7891	1.4059	0.4142	283.1	134.8	-	18N	2W
0450	Apr 13	05:16:17	6164	150	-19168	58	N	-t	-1.4006	0.3267	-0.7498	173.4	-	-	11S	54W
0450	May 12	20:31:41	6163	150	-19167	96	N	t-	1.4618	0.2083	-0.8560	138.7	-	-	17S	76E
0450	Oct 07	06:51:23	6159	150	-19162	63	N	-a	1.2254	0.5949	-0.3758	197.2	-	-	7N	80W
0450	Nov 05	16:56:27	6158	150	-19161	101	N	a-	-1.4214	0.2343	-0.7346	127.0	-	-	15N	128E
0451	Apr 02	06:33:00	6154	150	-19156	68	P	-t	-0.6417	1.7076	0.6538	332.4	177.0	-	6S	72W
0451	Sep 26	20:21:55	6150	150	-19150	73	P	-a	0.5663	1.8249	0.8130	317.4	182.3	-	2N	78E
0452	Mar 21	14:02:32	6145	150	-19144	78	T+	p-	0.1305	2.6196	1.6175	338.5	218.8	97.7	1S	177E
0452	Sep 15	03:27:13	6140	150	-19138	83	T-	pp	-0.1593	2.5981	1.5339	363.4	227.8	97.6	3S	28W
0453	Mar 11	03:58:14	6135	149	-19132	88	P	a-	0.8393	1.2987	0.3369	270.0	121.5	-	4N	31W
0453	Sep 04	04:16:57	6130	149	-19126	93	P	t-	-0.8928	1.2635	0.1769	311.3	101.6	-	8S	39W
0454	Jan 30	10:38:10	6126	149	-19121	60	N	-a	-1.1135	0.8072	-0.1777	228.4	-	-	16N	130W
0454	Feb 28	20:27:11	6126	149	-19120	98	N	a-	1.5173	0.0543	-0.9067	62.3	-	-	9N	83E
0454	Jul 25	15:56:42	6122	149	-19115	65	N	-t	1.2076	0.6545	-0.3698	223.9	-	-	19S	147E
0455	Jan 19	21:51:43	6117	149	-19109	70	T	-a	-0.4502	2.0526	1.0118	336.2	200.2	17.1	20N	61E
0455	Jul 15	03:14:41	6112	149	-19103	75	T	-p	0.4024	2.1040	1.1351	317.1	198.9	53.9	21S	23W
0456	Jan 09	01:42:38	6107	149	-19097	80	T+	pp	0.2533	2.4401	1.3472	369.3	225.5	85.7	22N	3E
0456	Jul 03	19:34:12	6103	149	-19091	85	T	p-	-0.3428	2.1995	1.2580	309.3	199.5	70.1	23S	92E
0456	Dec 28	00:50:29	6098	149	-19085	90	P	t-	0.9346	1.1945	0.0927	305.1	74.2	-	24N	14E
0457	May 25	04:24:43	6094	149	-19080	57	N	-a	1.4663	0.1577	-0.8226	109.7	-	-	20S	42W
0457	Jun 23	12:26:09	6093	149	-19079	95	N	a-	-1.0913	0.8344	-0.1234	229.8	-	-	25S	162W
0457	Nov 17	11:52:49	6089	148	-19074	62	N	-a	-1.3095	0.4699	-0.5590	188.8	-	-	18N	155W
0457	Dec 17	02:49:09	6088	148	-19073	100	N	a-	1.5644	0.0183	-1.0425	40.3	-	-	25N	17W
0458	May 14	13:49:55	6084	148	-19068	67	P	-t	0.7591	1.4833	0.4474	314.0	150.0	-	18S	177E
0458	Nov 07	00:25:34	6079	148	-19062	72	P	-a	-0.5803	1.7829	0.8031	300.4	174.5	-	16N	16E
0459	May 03	16:17:56	6075	148	-19056	77	T+	pp	0.0032	2.8879	1.8169	374.7	236.0	106.5	16S	139E
0459	Oct 27	16:10:20	6070	148	-19050	82	T+	p-	0.0942	2.6700	1.7000	319.8	210.1	96.4	13N	139E
0460	Apr 21	17:05:05	6065	148	-19044	87	P	t-	-0.7479	1.5151	0.4567	323.8	154.1	-	13S	128E

0460	Oct 16	06:27:43	6060	148	-19038	92	P	a-	0.8022	1.3881	0.3839	287.7	132.6	-	10N	75W
0461	Mar 12	12:39:24	6056	148	-19033	59	N	-a	1.2218	0.6109	-0.3787	206.2	-	-	4N	161W
0461	Apr 10	23:11:27	6056	148	-19032	97	N	a-	-1.4504	0.2015	-0.8081	127.1	-	-	10S	37E
0461	Sep 05	23:17:21	6052	148	-19027	64	N	-t	-1.3190	0.4749	-0.5984	203.4	-	-	7S	36E
0461	Oct 05	14:59:33	6051	148	-19026	102	Nb	t-	1.5719	0.0033	-1.0551	17.3	-	-	7N	157E
0462	Mar 02	03:40:36	6047	147	-19021	69	P	-a	0.4819	1.9529	0.9943	303.3	186.5	-	7N	26W
0462	Aug 25	23:25:10	6042	147	-19015	74	P	-t	-0.6118	1.7766	0.6950	346.5	185.3	-	11S	34E
0463	Feb 19	19:55:33	6037	147	-19009	79	T-	p-	-0.2150	2.4488	1.4777	320.4	208.2	88.5	11N	90E
0463	Aug 15	01:48:24	6032	147	-19003	84	T+	pp	0.1422	2.6181	1.5765	356.8	226.3	99.0	14S	1W
0464	Feb 09	08:45:01	6028	147	-18997	89	P	a-	-0.9577	1.1118	0.0899	272.2	68.3	-	14N	102W
0464	Aug 03	11:22:33	6023	147	-18991	94	P	a-	0.8766	1.2412	0.2576	275.1	110.7	-	17S	145W
0464	Dec 29	20:21:34	6019	147	-18986	61	N	-t	1.2725	0.5746	-0.5275	225.5	-	-	24N	82E
0465	Jun 24	20:00:24	6014	147	-18980	66	P	-a	-0.9402	1.1031	0.1621	251.5	85.8	-	25S	85E
0465	Dec 18	19:27:59	6009	147	-18974	71	P	-t	0.5967	1.8109	0.7162	346.4	185.7	-	24N	93E
0466	Jun 14	12:11:57	6005	147	-18968	76	T-	p-	-0.2125	2.4525	1.4832	326.4	212.4	90.6	24S	159W
0466	Dec 07	23:19:53	6000	146	-18962	81	T-	p-	-0.1131	2.6727	1.6286	349.8	222.1	98.6	23N	34E
0467	Jun 03	23:10:20	5995	146	-18956	86	P	t-	0.5793	1.8066	0.7838	328.2	185.9	-	22S	36E
0467	Nov 27	10:26:07	5990	146	-18950	91	P	a-	-0.7848	1.4132	0.4228	282.9	135.7	-	21N	134W
0468	Apr 23	11:53:03	5986	146	-18945	58	N	-t	-1.4732	0.1921	-0.8817	134.5	-	-	14S	155W
0468	May 23	02:58:41	5985	146	-18944	96	N	t-	1.3812	0.3564	-0.7084	179.3	-	-	20S	21W
0468	Oct 17	15:22:23	5982	146	-18939	63	N	-a	1.2442	0.5622	-0.4123	192.7	-	-	11N	151E
0468	Nov 16	01:45:04	5981	146	-18938	101	N	a-	-1.4160	0.2449	-0.7255	129.8	-	-	18N	4W
0469	Apr 12	13:31:50	5977	146	-18933	68	P	-t	-0.7049	1.5889	0.5407	323.9	163.5	-	10S	178W
0469	Oct 07	04:29:11	5972	146	-18927	73	P	-a	0.5925	1.7799	0.7621	316.7	178.6	-	7N	45W
0470	Apr 01	21:36:02	5967	146	-18921	78	T+	pp	0.0769	2.7149	1.7189	337.6	219.5	100.4	5S	62E
0470	Sep 26	11:00:27	5962	146	-18915	83	T-	pp	-0.1235	2.6667	1.5966	365.7	229.4	100.3	2N	142W
0471	Mar 22	11:56:26	5958	146	-18909	88	P	a-	0.7936	1.3804	0.4230	275.1	134.2	-	0S	152W
0471	Sep 15	11:29:19	5953	145	-18903	93	P	t-	-0.8473	1.3487	0.2586	318.8	121.4	-	3S	149W
0472	Feb 10	19:01:47	5949	145	-18898	60	N	-a	-1.1372	0.7636	-0.2209	223.7	-	-	13N	103E
0472	Mar 11	04:34:00	5948	145	-18897	98	N	a-	1.4823	0.1177	-0.8416	91.4	-	-	5N	41W
0472	Aug 04	23:05:54	5944	145	-18892	65	N	-t	1.2677	0.5438	-0.4796	205.5	-	-	16S	39E
0472	Sep 03	12:30:09	5943	145	-18891	103	N	t-	-1.5288	0.0828	-0.9764	86.6	-	-	8S	163W
0473	Jan 30	06:02:43	5939	145	-18886	70	P	-a	-0.4679	2.0203	0.9789	336.1	198.7	-	17N	62W
0473	Jul 25	10:42:30	5935	145	-18880	75	T	-a	0.4675	1.9842	1.0160	312.1	191.9	19.2	19S	135W
0474	Jan 19	09:38:14	5930	145	-18874	80	T+	pp	0.2395	2.4651	1.3727	370.3	226.7	88.1	20N	116W
0474	Jul 15	03:06:34	5925	145	-18868	85	T	p-	-0.2732	2.3279	1.3851	312.2	203.9	82.0	22S	21W
0475	Jan 08	08:49:19	5920	145	-18862	90	P	t-	0.9244	1.2119	0.1129	306.2	81.5	-	23N	105W
0475	Jun 05	11:32:13	5916	145	-18857	57	Ne	-a	1.5465	0.0120	-0.9712	30.8	-	-	21S	149W
0475	Jul 04	19:46:00	5916	145	-18856	95	P	a-	-1.0212	0.9648	0.0035	244.6	13.2	-	24S	88E
0475	Nov 28	20:27:25	5912	145	-18851	62	N	-a	-1.3082	0.4712	-0.5555	188.4	-	-	21N	76E

0475	Dec 28	11:10:50	5911	145	-18850	100	N	a-	1.5566	0.0306	-1.0264	51.8	-	-	25N	142W
0476	May 24	20:32:07	5907	144	-18845	67	P	-t	0.8430	1.3304	0.2924	303.7	124.6	-	20S	75E
0476	Nov 17	09:12:36	5902	144	-18839	72	P	-a	-0.5845	1.7751	0.7956	299.5	173.7	-	19N	116W
0477	May 13	22:45:05	5897	144	-18833	77	T+	pp	0.0874	2.7329	1.6629	374.2	235.3	104.6	19S	42E
0477	Nov 07	00:54:38	5893	144	-18827	82	T+	p-	0.0855	2.6874	1.7147	320.4	210.4	96.7	17N	7E
0478	May 02	23:47:00	5888	144	-18821	87	P	t-	-0.6700	1.6558	0.6020	331.6	172.5	-	16S	26E
0478	Oct 27	14:52:35	5883	144	-18815	92	P	a-	0.7901	1.4131	0.4037	290.6	135.9	-	14N	157E
0479	Mar 23	20:26:20	5879	144	-18810	59	N	-a	1.2642	0.5301	-0.4535	192.8	-	-	0S	80E
0479	Apr 22	06:26:10	5878	144	-18809	97	N	a-	-1.3822	0.3237	-0.6801	158.6	-	-	14S	73W
0479	Sep 17	06:36:49	5874	144	-18804	64	N	-t	-1.3646	0.3939	-0.6848	187.3	-	-	3S	76W
0479	Oct 16	22:54:19	5874	144	-18803	102	N	t-	1.5539	0.0393	-1.0249	59.5	-	-	11N	37E
0480	Mar 12	11:47:32	5870	144	-18798	69	P	-a	0.5219	1.8777	0.9227	299.9	181.9	-	3N	150W
0480	Sep 05	06:30:24	5865	143	-18792	74	P	-t	-0.6645	1.6811	0.5970	340.9	174.4	-	7S	74W
0481	Mar 02	04:08:04	5860	143	-18786	79	T-	p-	-0.1819	2.5091	1.5390	321.8	210.0	91.9	6N	34W
0481	Aug 25	09:05:11	5855	143	-18780	84	T+	pp	0.0852	2.7225	1.6810	356.6	227.1	102.0	10S	112W
0482	Feb 19	16:47:14	5851	143	-18774	89	P	a-	-0.9328	1.1577	0.1356	277.3	83.6	-	10N	136E
0482	Aug 14	18:57:33	5846	143	-18768	94	P	a-	0.8165	1.3514	0.3683	282.6	129.8	-	13S	100E
0483	Jan 10	04:17:57	5842	143	-18763	61	N	-t	1.2845	0.5522	-0.5491	221.7	-	-	23N	37W
0483	Jul 06	03:28:37	5837	143	-18757	66	P	-a	-1.0120	0.9723	0.0295	239.7	37.3	-	24S	27W
0483	Aug 04	10:30:48	5836	143	-18756	104	N	a-	1.4922	0.0939	-0.8541	81.3	-	-	16S	133W
0483	Dec 30	03:33:00	5832	143	-18751	71	P	-t	0.6026	1.7986	0.7069	344.9	184.4	-	24N	27W
0484	Jun 24	19:25:53	5828	143	-18745	76	T	-p	-0.2891	2.3138	1.3409	325.1	208.7	80.4	24S	93E
0484	Dec 18	07:48:55	5823	143	-18739	81	T-	p-	-0.1103	2.6760	1.6354	348.5	221.7	98.7	24N	93W
0485	Jun 14	05:56:40	5818	142	-18733	86	P	t-	0.4993	1.9551	0.9287	336.4	197.9	-	23S	66W
0485	Dec 07	19:15:01	5814	142	-18727	91	P	a-	-0.7820	1.4173	0.4287	282.5	136.3	-	22N	94E
0486	May 04	18:23:22	5810	142	-18722	58	Ne	-t	-1.5503	0.0495	-1.0220	69.1	-	-	18S	107E
0486	Jun 03	09:21:36	5809	142	-18721	96	N	t-	1.2972	0.5108	-0.5547	211.9	-	-	21S	117W
0486	Oct 28	23:59:30	5805	142	-18716	63	N	-a	1.2579	0.5390	-0.4394	189.6	-	-	15N	20E
0486	Nov 27	10:37:33	5804	142	-18715	101	N	a-	-1.4140	0.2492	-0.7223	131.0	-	-	20N	137W
0487	Apr 23	20:25:02	5800	142	-18710	68	P	-t	-0.7733	1.4607	0.4180	314.0	146.1	-	14S	77E
0487	Oct 18	12:43:03	5795	142	-18704	73	P	-a	0.6121	1.7468	0.7231	316.5	175.6	-	11N	170W
0488	Apr 12	05:03:02	5791	142	-18698	78	T+	pp	0.0171	2.8217	1.8315	336.3	219.5	101.6	9S	52W
0488	Oct 06	18:42:00	5786	142	-18692	83	T-	pp	-0.0954	2.7211	1.6454	367.7	230.5	101.9	6N	101E
0489	Apr 01	19:48:45	5781	142	-18686	88	P	a-	0.7427	1.4718	0.5184	280.4	146.3	-	5S	88E
0489	Sep 25	18:49:43	5776	142	-18680	93	P	t-	-0.8082	1.4221	0.3288	324.9	135.4	-	1N	100E
0490	Feb 21	03:18:33	5772	141	-18675	60	N	-a	-1.1660	0.7106	-0.2734	217.4	-	-	9N	22W
0490	Mar 22	12:34:33	5772	141	-18674	98	N	a-	1.4426	0.1898	-0.7681	115.4	-	-	0N	162W
0490	Aug 16	06:23:19	5768	141	-18669	65	N	-t	1.3217	0.4444	-0.5783	186.9	-	-	12S	72W
0490	Sep 14	19:56:56	5767	141	-18668	103	N	t-	-1.4828	0.1674	-0.8923	121.9	-	-	4S	84E
0491	Feb 10	14:05:53	5763	141	-18663	70	P	-a	-0.4914	1.9773	0.9356	335.5	196.4	-	13N	177E

0491	Aug 05	18:16:24	5758	141	-18657	75	P	-a	0.5281	1.8729	0.9050	306.9	184.3	-	16S	111E
0492	Jan 30	17:26:00	5754	141	-18651	80	T+	pp	0.2198	2.5007	1.4093	371.4	228.2	91.1	17N	127E
0492	Jul 25	10:44:06	5749	141	-18645	85	T-	p-	-0.2079	2.4485	1.5039	314.5	207.1	89.6	20S	136W
0493	Jan 18	16:41:20	5744	141	-18639	90	P	t-	0.9084	1.2395	0.1439	308.1	91.5	-	21N	137E
0493	Jul 15	03:10:12	5739	141	-18633	95	P	a-	-0.9552	1.0879	0.1226	257.2	76.7	-	23S	23W
0493	Dec 09	05:03:18	5735	141	-18628	62	N	-a	-1.3061	0.4735	-0.5504	188.1	-	-	22N	53W
0494	Jan 07	19:29:07	5735	141	-18627	100	N	a-	1.5458	0.0481	-1.0042	64.7	-	-	24N	94E
0494	Jun 05	03:10:52	5731	141	-18622	67	P	-t	0.9285	1.1749	0.1342	291.5	86.6	-	22S	25W
0494	Nov 28	18:02:23	5726	140	-18616	72	P	-a	-0.5868	1.7705	0.7917	298.8	173.1	-	21N	111E
0495	May 25	05:07:28	5721	140	-18610	77	T+	pp	0.1751	2.5717	1.5024	372.5	232.6	98.3	21S	55W
0495	Nov 18	09:43:05	5717	140	-18604	82	T+	p-	0.0801	2.6983	1.7234	321.0	210.6	96.9	20N	125W
0496	May 13	06:23:49	5712	140	-18598	87	P	t-	-0.5868	1.8062	0.7566	338.7	187.9	-	19S	74W
0496	Nov 06	23:23:37	5707	140	-18592	92	P	a-	0.7836	1.4273	0.4133	292.7	137.7	-	18N	29E
0497	Apr 03	04:05:52	5703	140	-18587	59	N	-a	1.3133	0.4372	-0.5408	175.9	-	-	5S	36W
0497	May 02	13:36:26	5702	140	-18586	97	N	a-	-1.3091	0.4551	-0.5433	184.8	-	-	17S	178E
0497	Sep 27	14:04:20	5699	140	-18581	64	N	-t	-1.4030	0.3260	-0.7579	171.9	-	-	1N	171E
0497	Oct 27	06:55:08	5698	140	-18580	102	N	t-	1.5412	0.0652	-1.0043	76.8	-	-	15N	84W
0498	Mar 23	19:47:26	5694	140	-18575	69	P	-a	0.5680	1.7913	0.8397	295.9	176.0	-	1S	89E
0498	Sep 16	13:44:53	5689	140	-18569	74	P	-t	-0.7099	1.5990	0.5126	335.7	163.7	-	3S	176E
0499	Mar 13	12:11:51	5684	140	-18563	79	T-	pp	-0.1420	2.5818	1.6127	323.2	211.8	95.2	2N	157W
0499	Sep 05	16:31:24	5680	139	-18557	84	T+	pp	0.0352	2.8144	1.7728	355.9	227.1	103.2	6S	135E
0500	Mar 02	00:40:16	5675	139	-18551	89	P	h-	-0.9013	1.2155	0.1933	283.2	99.4	-	6N	17E
0500	Aug 25	02:41:00	5670	139	-18545	94	P	a-	0.7625	1.4504	0.4673	288.6	143.6	-	10S	17W

6TH CENTURY CE

In the 6th century CE the total number of lunar eclipses was 254 lunar eclipses: 97 penumbral lunar eclipses, 95 partial lunar eclipses, 62 total lunar eclipses (50 central total lunar eclipses, 12 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG

GREATEST S m m m ° °
ECLIPSE

0501	Jan 20	12:08:41	5666	139	-18540	61	N	-t	1.3008	0.5217	-0.5781	216.2	-	-	21N	154W
0501	Jul 16	11:01:06	5661	139	-18534	66	N	-a	-1.0801	0.8484	-0.0966	227.1	-	-	22S	141W
0501	Aug 14	18:18:40	5661	139	-18533	104	N	a-	1.4367	0.1966	-0.7533	116.5	-	-	13S	109E
0502	Jan 09	11:35:55	5657	139	-18528	71	P	-t	0.6109	1.7816	0.6935	343.0	182.8	-	22N	147W
0502	Jul 06	02:40:29	5652	139	-18522	76	T	-a	-0.3643	2.1780	1.2010	323.0	203.8	64.9	23S	16W
0502	Dec 29	16:17:33	5647	139	-18516	81	T-	p-	-0.1064	2.6811	1.6445	347.1	221.2	98.8	23N	141E
0503	Jun 25	12:42:09	5642	139	-18510	86	T	t-	0.4192	2.1041	1.0737	343.5	207.8	42.8	23S	167W
0503	Dec 19	04:03:10	5637	139	-18504	91	P	a-	-0.7786	1.4225	0.4363	282.1	137.0	-	23N	37W
0504	Jun 13	15:44:04	5633	138	-18498	96	N	t-	1.2126	0.6667	-0.4001	238.8	-	-	22S	147E
0504	Nov 08	08:41:28	5629	138	-18493	63	N	-a	1.2677	0.5228	-0.4589	187.5	-	-	19N	111W
0504	Dec 07	19:30:27	5628	138	-18492	101	N	a-	-1.4125	0.2523	-0.7199	131.8	-	-	22N	90E
0505	May 04	03:15:09	5624	138	-18487	68	P	-t	-0.8447	1.3270	0.2894	302.6	123.6	-	17S	27W
0505	Oct 28	21:01:39	5619	138	-18481	73	P	-a	0.6272	1.7218	0.6928	316.5	173.2	-	15N	64E
0506	Apr 23	12:25:42	5614	138	-18475	78	T-	pp	-0.0473	2.7634	1.7787	334.5	218.8	101.1	13S	164W
0506	Oct 18	02:30:21	5610	138	-18469	83	T-	pp	-0.0734	2.7641	1.6832	369.4	231.2	102.9	10N	18W
0507	Apr 13	03:32:25	5605	138	-18463	88	P	a-	0.6843	1.5771	0.6273	286.0	158.0	-	9S	30W
0507	Oct 07	02:20:20	5600	138	-18457	93	P	t-	-0.7771	1.4807	0.3846	329.4	145.1	-	5N	14W
0508	Mar 03	11:24:35	5596	138	-18452	60	N	-a	-1.2031	0.6422	-0.3414	208.6	-	-	5N	145W
0508	Apr 01	20:24:54	5595	138	-18451	98	N	a-	1.3951	0.2764	-0.6803	138.3	-	-	4S	78E
0508	Aug 26	13:50:59	5591	138	-18446	65	N	-h	1.3683	0.3588	-0.6637	168.7	-	-	9S	175E
0508	Sep 25	03:35:11	5590	138	-18445	103	N	h-	-1.4448	0.2373	-0.8229	143.9	-	-	0N	32W
0509	Feb 20	21:58:06	5586	137	-18440	70	P	-a	-0.5231	1.9191	0.8774	334.1	192.8	-	10N	57E
0509	Aug 16	01:58:34	5582	137	-18434	75	P	-a	0.5823	1.7734	0.8053	301.8	176.4	-	13S	6W
0510	Feb 10	01:06:05	5577	137	-18428	80	T+	pp	0.1943	2.5467	1.4570	372.5	229.9	94.5	14N	11E
0510	Aug 05	18:25:27	5572	137	-18422	85	T-	p-	-0.1461	2.5631	1.6162	316.2	209.2	94.5	17S	108E
0511	Jan 30	00:29:25	5567	137	-18416	90	P	t-	0.8887	1.2734	0.1820	310.3	102.2	-	18N	20E
0511	Jul 26	10:35:59	5563	137	-18410	95	P	a-	-0.8913	1.2073	0.2374	268.4	105.3	-	20S	135W
0511	Dec 20	13:40:18	5559	137	-18405	62	N	-a	-1.3042	0.4754	-0.5451	187.8	-	-	22N	179E
0512	Jan 19	03:44:02	5558	137	-18404	100	N	a-	1.5315	0.0718	-0.9755	78.5	-	-	22N	29W
0512	Jun 15	09:46:51	5554	137	-18399	67	Nx	-t	1.0150	1.0177	-0.0262	276.9	-	-	23S	124W
0512	Dec 09	02:54:17	5549	137	-18393	72	P	-a	-0.5876	1.7686	0.7909	298.3	172.8	-	23N	21W
0513	Jun 04	11:29:02	5544	137	-18387	77	T+	pp	0.2635	2.4093	1.3403	369.6	227.9	86.4	22S	150W
0513	Nov 28	18:33:13	5540	136	-18381	82	T+	p-	0.0765	2.7058	1.7290	321.6	210.9	97.0	22N	103E
0514	May 24	13:00:44	5535	136	-18375	87	P	t-	-0.5028	1.9584	0.9127	344.6	200.3	-	22S	174W
0514	Nov 18	07:57:08	5530	136	-18369	92	P	a-	0.7799	1.4363	0.4180	294.5	138.8	-	21N	99W
0515	Apr 14	11:39:36	5526	136	-18364	59	N	-a	1.3676	0.3349	-0.6378	154.9	-	-	9S	152W
0515	May 13	20:43:44	5525	136	-18363	97	N	a-	-1.2325	0.5932	-0.4002	207.3	-	-	20S	70E

0515 Oct 08	21:39:31	5521	136	-18358	64	N	-t	-1.4347	0.2704	-0.8184	157.8	-	-	6N	56E
0515 Nov 07	15:00:42	5521	136	-18357	102	N	t-	1.5329	0.0828	-0.9914	86.7	-	-	18N	154E
0516 Apr 03	03:39:48	5517	136	-18352	69	P	-a	0.6204	1.6937	0.7451	291.0	168.4	-	5S	31W
0516 Sep 26	21:09:27	5512	136	-18346	74	P	-t	-0.7472	1.5317	0.4431	331.0	153.7	-	2N	64E
0517 Mar 23	20:06:27	5507	136	-18340	79	T-	pp	-0.0950	2.6678	1.6993	324.7	213.5	98.0	2S	83E
0517 Sep 16	00:08:43	5502	136	-18334	84	T-	pp	-0.0064	2.8672	1.8256	354.9	226.5	103.2	2S	19E
0518 Mar 13	08:23:01	5498	136	-18328	89	P	h-	-0.8621	1.2874	0.2650	290.1	115.5	-	2N	101W
0518 Sep 05	10:33:10	5493	135	-18322	94	P	a-	0.7151	1.5375	0.5542	293.3	153.9	-	6S	136W
0519 Jan 31	19:51:53	5489	135	-18317	61	N	-t	1.3227	0.4803	-0.6174	208.2	-	-	18N	90E
0519 Jul 27	18:37:20	5484	135	-18311	66	N	-a	-1.1450	0.7307	-0.2172	213.7	-	-	20S	105E
0519 Aug 26	02:13:54	5483	135	-18310	104	N	a-	1.3871	0.2888	-0.6634	140.0	-	-	9S	11W
0520 Jan 20	19:32:36	5479	135	-18305	71	P	-t	0.6246	1.7542	0.6705	340.4	180.1	-	20N	94E
0520 Jul 16	09:57:19	5475	135	-18299	76	T	-a	-0.4367	2.0475	1.0657	320.3	197.6	38.8	22S	126W
0521 Jan 09	00:43:30	5470	135	-18293	81	T-	p-	-0.0995	2.6915	1.6596	345.7	220.9	99.1	22N	15E
0521 Jul 05	19:27:58	5465	135	-18287	86	T	p-	0.3403	2.2511	1.2162	349.6	215.7	70.1	23S	91E
0521 Dec 29	12:50:25	5460	135	-18281	91	P	a-	-0.7740	1.4294	0.4459	281.9	138.1	-	22N	168W
0522 Jun 24	22:06:00	5456	135	-18275	96	N	t-	1.1272	0.8241	-0.2441	261.7	-	-	23S	51E
0522 Nov 19	17:27:39	5452	135	-18270	63	N	-a	1.2737	0.5133	-0.4714	186.4	-	-	21N	118E
0522 Dec 19	04:24:08	5451	135	-18269	101	N	a-	-1.4122	0.2530	-0.7194	132.0	-	-	22N	43W
0523 May 15	10:00:39	5447	134	-18264	68	P	-t	-0.9204	1.1857	0.1528	289.3	91.3	-	20S	129W
0523 Nov 09	05:25:52	5442	134	-18258	73	P	-a	0.6368	1.7067	0.6727	317.1	171.7	-	18N	62W
0524 May 03	19:44:07	5438	134	-18252	78	T-	pp	-0.1161	2.6347	1.6550	332.2	217.1	98.4	16S	85E
0524 Oct 28	10:24:41	5433	134	-18246	83	T-	pp	-0.0569	2.7967	1.7110	370.9	231.8	103.5	14N	137W
0525 Apr 23	11:12:04	5428	134	-18240	88	P	a-	0.6222	1.6894	0.7427	291.4	168.6	-	12S	146W
0525 Oct 17	09:58:55	5423	134	-18234	93	P	t-	-0.7520	1.5278	0.4293	332.9	152.2	-	9N	130W
0526 Mar 14	19:23:21	5419	134	-18229	60	N	-a	-1.2454	0.5644	-0.4189	197.6	-	-	1N	94E
0526 Apr 13	04:09:26	5419	134	-18228	98	N	a-	1.3434	0.3708	-0.5851	159.0	-	-	8S	40W
0526 Sep 06	21:27:02	5415	134	-18223	65	N	-h	1.4087	0.2845	-0.7377	150.8	-	-	5S	60E
0526 Oct 06	11:21:48	5414	134	-18222	103	N	h-	-1.4129	0.2960	-0.7644	159.4	-	-	5N	150W
0527 Mar 04	05:41:36	5410	134	-18217	70	P	-h	-0.5609	1.8497	0.8081	331.9	187.9	-	5N	60W
0527 Aug 27	09:48:44	5405	134	-18211	75	P	-a	0.6302	1.6858	0.7172	296.9	168.5	-	9S	125W
0528 Feb 21	08:35:22	5400	134	-18205	80	T+	pp	0.1606	2.6075	1.5198	373.6	231.7	98.2	10N	102W
0528 Aug 16	02:14:30	5396	133	-18199	85	T-	pp	-0.0910	2.6656	1.7158	317.4	210.5	97.3	14S	11W
0529 Feb 09	08:08:58	5391	133	-18193	90	P	t-	0.8622	1.3198	0.2329	313.5	114.6	-	15N	95W
0529 Aug 05	18:07:18	5386	133	-18187	95	P	a-	-0.8327	1.3174	0.3425	278.0	124.9	-	17S	112E
0529 Dec 30	22:14:46	5382	133	-18182	62	N	-a	-1.3046	0.4726	-0.5439	186.6	-	-	22N	51E
0530 Jan 29	11:52:52	5382	133	-18181	100	N	a-	1.5119	0.1049	-0.9367	94.2	-	-	19N	151W
0530 Jun 26	16:22:51	5378	133	-18176	67	N	-t	1.1001	0.8634	-0.1840	260.1	-	-	23S	137E
0530 Dec 20	11:45:29	5373	133	-18170	72	P	-a	-0.5893	1.7647	0.7886	297.6	172.5	-	23N	153W
0531 Jun 15	17:48:13	5368	133	-18164	77	T	-t	0.3535	2.2442	1.1751	365.3	220.9	65.8	23S	115E

0531 Dec 10	03:24:55	5363	133	-18158	82	T+	p-	0.0747	2.7100	1.7318	322.1	211.1	97.2	23N	30W
0532 Jun 03	19:36:16	5359	133	-18152	87	T	t-	-0.4170	2.1143	1.0719	349.3	210.1	42.7	23S	87E
0532 Nov 28	16:33:03	5354	133	-18146	92	P	a-	0.7791	1.4396	0.4177	295.8	139.1	-	23N	132E
0533 Apr 24	19:08:04	5350	132	-18141	59	N	-a	1.4265	0.2244	-0.7435	127.6	-	-	12S	95E
0533 May 24	03:49:47	5349	132	-18140	97	N	a-	-1.1539	0.7352	-0.2538	226.5	-	-	22S	37W
0533 Oct 19	05:23:05	5345	132	-18135	64	N	-t	-1.4586	0.2287	-0.8646	146.1	-	-	10N	61W
0533 Nov 17	23:11:01	5345	132	-18134	102	N	t-	1.5293	0.0915	-0.9868	91.4	-	-	21N	31E
0534 Apr 14	11:25:27	5341	132	-18129	69	P	-a	0.6785	1.5857	0.6399	285.2	158.7	-	9S	149W
0534 Oct 08	04:43:09	5336	132	-18123	74	P	-t	-0.7772	1.4775	0.3871	326.8	144.7	-	6N	51W
0535 Apr 04	03:53:02	5331	132	-18117	79	T-	pp	-0.0419	2.7649	1.7969	325.9	214.8	99.8	6S	35W
0535 Sep 27	07:56:17	5327	132	-18111	84	T-	pp	-0.0405	2.8046	1.7630	353.7	225.6	102.5	2N	99W
0536 Mar 23	15:55:29	5322	132	-18105	89	P	t-	-0.8154	1.3733	0.3506	297.7	131.6	-	3S	144E
0536 Sep 15	18:35:02	5317	132	-18099	94	P	a-	0.6750	1.6112	0.6275	296.8	161.4	-	2S	102E
0537 Feb 11	03:27:42	5313	132	-18094	61	N	-t	1.3504	0.4282	-0.6668	197.5	-	-	14N	25W
0537 Aug 07	02:18:35	5308	132	-18088	66	N	-a	-1.2055	0.6214	-0.3298	199.6	-	-	17S	11W
0537 Sep 05	10:15:57	5308	132	-18087	104	N	a-	1.3430	0.3710	-0.5836	157.4	-	-	5S	133W
0538 Jan 31	03:24:57	5304	131	-18082	71	P	-t	0.6425	1.7189	0.6401	337.3	176.5	-	17N	25W
0538 Jul 27	17:17:14	5299	131	-18076	76	P	-a	-0.5058	1.9234	0.9364	317.1	190.2	-	20S	124E
0539 Jan 20	09:05:20	5294	131	-18070	81	T-	p-	-0.0885	2.7091	1.6823	344.2	220.6	99.5	20N	111W
0539 Jul 17	02:15:01	5290	131	-18064	86	T+	pp	0.2632	2.3950	1.3553	354.7	221.7	85.6	21S	11W
0540 Jan 09	21:34:04	5285	131	-18058	91	P	a-	-0.7662	1.4422	0.4618	282.0	140.0	-	21N	61E
0540 Jul 05	04:31:05	5280	131	-18052	96	N	t-	1.0440	0.9778	-0.0924	280.9	-	-	22S	46W
0540 Nov 30	02:14:39	5276	131	-18047	63	N	-a	1.2789	0.5049	-0.4824	185.4	-	-	24N	14W
0540 Dec 29	13:14:03	5275	131	-18046	101	N	a-	-1.4091	0.2585	-0.7136	133.5	-	-	22N	175W
0541 May 25	16:46:27	5272	131	-18041	68	P	-t	-0.9967	1.0437	0.0150	274.4	29.1	-	22S	129E
0541 Nov 19	13:52:47	5267	131	-18035	73	P	-a	0.6438	1.6961	0.6577	317.8	170.7	-	21N	171E
0542 May 15	02:59:28	5262	131	-18029	78	T-	pp	-0.1883	2.4999	1.5247	329.2	214.2	93.1	19S	25W
0542 Nov 08	18:24:11	5257	130	-18023	83	T-	pp	-0.0452	2.8202	1.7305	372.2	232.3	103.8	17N	102E
0543 May 04	18:45:34	5253	130	-18017	88	P	a-	0.5546	1.8121	0.8681	296.7	178.4	-	16S	99E
0543 Oct 28	17:46:14	5248	130	-18011	93	P	t-	-0.7340	1.5619	0.4615	335.2	156.9	-	13N	112E
0544 Mar 25	03:10:33	5244	130	-18006	60	N	-a	-1.2964	0.4708	-0.5123	182.7	-	-	4S	25W
0544 Apr 23	11:44:56	5243	130	-18005	98	N	a-	1.2849	0.4780	-0.4776	179.1	-	-	12S	155W
0544 Sep 17	05:14:41	5239	130	-18000	65	N	-h	1.4406	0.2259	-0.7962	134.6	-	-	0S	59W
0544 Oct 16	19:19:30	5239	130	-17999	103	N	h-	-1.3889	0.3400	-0.7203	169.7	-	-	9N	89E
0545 Mar 14	13:14:14	5235	130	-17994	70	P	-h	-0.6067	1.7658	0.7242	328.8	181.0	-	1N	175W
0545 Sep 06	17:47:01	5230	130	-17988	75	P	-a	0.6718	1.6098	0.6404	292.3	160.9	-	5S	114E
0546 Mar 03	15:56:14	5225	130	-17982	80	T+	pp	0.1204	2.6802	1.5948	374.6	233.4	101.7	6N	146E
0546 Aug 27	10:09:28	5221	130	-17976	85	T-	pp	-0.0412	2.7587	1.8057	318.3	211.1	98.6	10S	131W
0547 Feb 20	15:41:31	5216	130	-17970	90	P	t-	0.8292	1.3778	0.2961	317.2	127.8	-	11N	150E
0547 Aug 17	01:42:40	5211	130	-17964	95	P	a-	-0.7781	1.4204	0.4400	286.4	139.9	-	14S	3W

0548	Jan 11	06:47:41	5207	129	-17959	62	N	-a	-1.3071	0.4657	-0.5464	184.7	-	-	20N	77W
0548	Feb 09	19:56:37	5207	129	-17958	100	N	a-	1.4872	0.1471	-0.8885	110.7	-	-	15N	87E
0548	Jul 06	22:59:49	5203	129	-17953	67	N	-t	1.1833	0.7128	-0.3386	240.8	-	-	22S	37E
0548	Dec 30	20:34:55	5198	129	-17947	72	P	-a	-0.5927	1.7575	0.7834	296.8	171.9	-	22N	75E
0549	Jun 26	00:10:36	5193	129	-17941	77	T	-t	0.4408	2.0842	1.0146	359.9	211.7	20.0	23S	19E
0549	Dec 20	12:16:01	5189	129	-17935	82	T+	pp	0.0727	2.7140	1.7348	322.7	211.4	97.3	24N	162W
0550	Jun 15	02:13:39	5184	129	-17929	87	T	t-	-0.3315	2.2696	1.2301	352.8	217.6	72.4	24S	13W
0550	Dec 10	01:09:13	5179	129	-17923	92	P	a-	0.7791	1.4411	0.4160	297.0	139.2	-	24N	3E
0551	May 06	02:33:15	5175	129	-17918	59	N	-a	1.4884	0.1086	-0.8549	89.4	-	-	15S	18W
0551	Jun 04	10:56:10	5175	129	-17917	97	N	a-	-1.0746	0.8788	-0.1064	243.0	-	-	24S	144W
0551	Oct 30	13:12:44	5171	129	-17912	64	N	-t	-1.4776	0.1958	-0.9012	135.9	-	-	13N	180W
0551	Nov 29	07:22:27	5170	129	-17911	102	N	t-	1.5268	0.0977	-0.9839	94.7	-	-	23N	91W
0552	Apr 24	19:04:57	5166	129	-17906	69	P	-a	0.7419	1.4684	0.5246	278.2	146.4	-	13S	95E
0552	Oct 18	12:26:33	5161	128	-17900	74	P	-t	-0.7999	1.4366	0.3449	323.5	137.3	-	10N	168W
0553	Apr 14	11:31:50	5157	128	-17894	79	T+	pp	0.0173	2.8101	1.8420	326.8	215.5	100.4	10S	152W
0553	Oct 07	15:52:57	5152	128	-17888	84	T-	pp	-0.0680	2.7541	1.7126	352.4	224.6	101.4	6N	140E
0554	Apr 03	23:18:07	5147	128	-17882	89	P	t-	-0.7613	1.4727	0.4496	305.9	147.3	-	7S	32E
0554	Sep 27	02:45:53	5143	128	-17876	94	P	a-	0.6418	1.6724	0.6883	299.4	166.9	-	3N	23W
0555	Feb 22	10:52:48	5139	128	-17871	61	N	-t	1.3862	0.3610	-0.7310	182.4	-	-	11N	137W
0555	Mar 24	03:43:19	5138	128	-17870	99	Nb	t-	-1.5488	0.0532	-1.0202	71.0	-	-	3S	34W
0555	Aug 18	10:05:45	5134	128	-17865	66	N	-a	-1.2609	0.5219	-0.4332	185.1	-	-	14S	129W
0555	Sep 16	18:26:41	5133	128	-17864	104	N	a-	1.3059	0.4403	-0.5171	170.4	-	-	1S	103E
0556	Feb 11	11:09:08	5129	128	-17859	71	P	-t	0.6675	1.6703	0.5969	333.2	171.3	-	14N	141W
0556	Aug 07	00:41:48	5125	128	-17853	76	P	-a	-0.5700	1.8084	0.8158	313.6	181.8	-	17S	12E
0557	Jan 30	17:21:18	5120	128	-17847	81	T-	pp	-0.0719	2.7368	1.7156	342.8	220.4	100.1	17N	125E
0557	Jul 27	09:06:03	5115	127	-17841	86	T+	pp	0.1901	2.5319	1.4869	358.8	226.1	95.3	19S	114W
0558	Jan 20	06:14:37	5111	127	-17835	91	P	a-	-0.7556	1.4599	0.4832	282.5	142.5	-	19N	69W
0558	Jul 16	10:57:44	5106	127	-17829	96	P	t-	0.9617	1.1299	0.0575	297.4	58.9	-	21S	143W
0558	Dec 11	11:03:40	5102	127	-17824	63	N	-a	1.2824	0.4996	-0.4897	185.0	-	-	25N	145W
0559	Jan 09	22:02:19	5101	127	-17823	101	N	a-	-1.4051	0.2655	-0.7060	135.3	-	-	20N	53E
0559	Jun 05	23:31:12	5097	127	-17818	68	N	-t	-1.0745	0.8990	-0.1259	257.5	-	-	24S	27E
0559	Nov 30	22:22:05	5093	127	-17812	73	P	-a	0.6479	1.6904	0.6482	318.7	170.2	-	23N	44E
0560	May 25	10:13:29	5088	127	-17806	78	T-	-p	-0.2624	2.3621	1.3908	325.5	210.1	84.5	22S	134W
0560	Nov 19	02:27:56	5083	127	-17800	83	T-	pp	-0.0373	2.8364	1.7433	373.3	232.7	104.0	20N	19W
0561	May 15	02:16:57	5079	127	-17794	88	P	a-	0.4851	1.9386	0.9966	301.4	186.7	-	19S	15W
0561	Nov 08	01:38:33	5074	127	-17788	93	P	t-	-0.7197	1.5888	0.4871	336.8	160.4	-	17N	7W
0562	Apr 05	10:51:07	5070	127	-17783	60	N	-a	-1.3520	0.3688	-0.6145	163.7	-	-	8S	142W
0562	May 04	19:16:22	5069	127	-17782	98	N	a-	1.2234	0.5909	-0.3649	197.4	-	-	15S	91E
0562	Sep 28	13:11:05	5066	126	-17777	65	N	-a	1.4663	0.1787	-0.8432	119.9	-	-	4N	180W
0562	Oct 28	03:24:24	5065	126	-17776	103	N	a-	-1.3699	0.3746	-0.6853	177.0	-	-	13N	33W

0563	Mar 25	20:36:21	5061	126	-17771	70	P	-t	-0.6601	1.6678	0.6261	324.4	171.6	-	3S	73E
0563	Sep 18	01:54:21	5056	126	-17765	75	P	-a	0.7065	1.5468	0.5763	288.2	153.9	-	1S	9W
0564	Mar 13	23:06:09	5052	126	-17759	80	T+	pp	0.0714	2.7689	1.6858	375.4	234.8	104.5	2N	37E
0564	Sep 06	18:12:46	5047	126	-17753	85	T+	pp	0.0016	2.8330	1.8766	318.9	211.3	98.9	6S	107E
0565	Mar 02	23:04:49	5042	126	-17747	90	P	t-	0.7880	1.4506	0.3742	321.8	141.7	-	7N	38E
0565	Aug 27	09:25:49	5038	126	-17741	95	P	a-	-0.7304	1.5108	0.5246	293.4	151.2	-	10S	120W
0566	Jan 21	15:15:44	5034	126	-17736	62	N	-a	-1.3141	0.4505	-0.5566	181.2	-	-	18N	156E
0566	Feb 20	03:52:56	5033	126	-17735	100	N	a-	1.4560	0.2013	-0.8280	128.2	-	-	12N	33W
0566	Jul 18	05:38:35	5029	126	-17730	67	N	-t	1.2637	0.5675	-0.4882	218.7	-	-	20S	63W
0566	Aug 16	19:12:29	5028	126	-17729	105	Nb	t-	-1.5297	0.0707	-0.9679	78.6	-	-	15S	94E
0567	Jan 11	05:21:09	5024	126	-17724	72	P	-a	-0.5989	1.7447	0.7731	295.8	170.9	-	21N	56W
0567	Jul 07	06:34:46	5020	125	-17718	77	P	-t	0.5262	1.9279	0.8575	353.3	200.3	-	22S	77W
0567	Dec 31	21:04:29	5015	125	-17712	82	T+	pp	0.0690	2.7211	1.7415	323.2	211.7	97.6	23N	67E
0568	Jun 25	08:53:34	5010	125	-17706	87	T-	p-	-0.2474	2.4228	1.3857	355.1	222.8	88.3	24S	113W
0568	Dec 20	09:44:55	5006	125	-17700	92	P	a-	0.7799	1.4409	0.4133	298.0	139.2	-	24N	125W
0569	Jun 14	18:03:21	5001	125	-17694	97	P	a-	-0.9948	1.0236	0.0417	257.2	46.1	-	24S	109E
0569	Nov 09	21:07:56	4997	125	-17689	64	N	-t	-1.4916	0.1718	-0.9285	127.8	-	-	17N	61E
0569	Dec 09	15:35:12	4996	125	-17688	102	N	t-	1.5260	0.1006	-0.9836	96.3	-	-	25N	146E
0570	May 06	02:39:35	4993	125	-17683	69	P	-a	0.8092	1.3440	0.4018	270.0	130.5	-	16S	20W
0570	Oct 29	20:18:04	4988	125	-17677	74	P	-t	-0.8163	1.4070	0.3143	320.8	131.5	-	14N	73E
0571	Apr 25	19:02:10	4983	125	-17671	79	T+	pp	0.0829	2.6899	1.7214	327.3	215.4	99.2	14S	94E
0571	Oct 18	23:59:19	4979	125	-17665	84	T-	pp	-0.0883	2.7166	1.6756	351.1	223.6	100.4	11N	17E
0572	Apr 14	06:31:56	4974	125	-17659	89	P	t-	-0.7010	1.5837	0.5599	314.1	162.1	-	11S	78W
0572	Oct 07	11:05:01	4969	124	-17653	94	P	a-	0.6150	1.7218	0.7372	301.2	170.9	-	7N	149W
0573	Mar 04	18:10:01	4966	124	-17648	61	N	-t	1.4278	0.2829	-0.8058	162.5	-	-	7N	112E
0573	Apr 03	10:40:35	4965	124	-17647	99	N	t-	-1.4915	0.1576	-0.9143	121.3	-	-	7S	140W
0573	Aug 28	17:59:47	4961	124	-17642	66	N	-a	-1.3103	0.4332	-0.5260	170.4	-	-	10S	111E
0573	Sep 27	02:44:49	4960	124	-17641	104	N	a-	1.2752	0.4981	-0.4621	180.4	-	-	4N	24W
0574	Feb 21	18:47:40	4956	124	-17636	71	P	-t	0.6977	1.6119	0.5442	328.4	164.6	-	10N	103E
0574	Aug 18	08:10:43	4952	124	-17630	76	P	-a	-0.6298	1.7018	0.7031	309.8	172.6	-	13S	101W
0575	Feb 11	01:32:00	4947	124	-17624	81	T-	pp	-0.0500	2.7740	1.7587	341.3	220.2	100.7	13N	2E
0575	Aug 07	16:01:42	4942	124	-17618	86	T+	pp	0.1213	2.6608	1.6102	362.1	229.1	101.1	16S	141E
0576	Jan 31	14:48:03	4938	124	-17612	91	P	a-	-0.7386	1.4891	0.5162	283.6	146.3	-	16N	162E
0576	Jul 26	17:31:21	4933	124	-17606	96	P	t-	0.8846	1.2727	0.1978	311.1	107.1	-	18S	118E
0576	Dec 21	19:50:38	4929	124	-17601	63	N	-a	1.2876	0.4908	-0.5001	184.0	-	-	25N	84E
0577	Jan 20	06:44:31	4928	124	-17600	101	N	a-	-1.3963	0.2812	-0.6895	139.1	-	-	18N	77W
0577	Jun 16	06:18:52	4925	124	-17595	68	N	-t	-1.1505	0.7578	-0.2637	238.9	-	-	25S	75W
0577	Dec 11	06:50:28	4920	123	-17589	73	P	-a	0.6523	1.6839	0.6386	319.6	169.7	-	24N	83W
0578	Jun 05	17:27:25	4915	123	-17583	78	T	-p	-0.3375	2.2226	1.2547	321.1	204.7	71.4	23S	118E
0578	Nov 30	10:33:52	4911	123	-17577	83	T-	pp	-0.0318	2.8479	1.7522	374.3	233.1	104.1	22N	140W

0579	May 26	09:43:42	4906	123	-17571	88	T	a-	0.4115	2.0730	1.1323	305.7	194.0	52.3	21S	127W
0579	Nov 19	09:37:41	4901	123	-17565	93	P	t-	-0.7105	1.6059	0.5038	337.7	162.5	-	20N	127W
0580	Apr 15	18:21:43	4897	123	-17560	60	N	-a	-1.4150	0.2535	-0.7304	137.7	-	-	12S	104E
0580	May 15	02:41:31	4897	123	-17559	98	N	a-	1.1572	0.7130	-0.2438	214.7	-	-	18S	21W
0580	Oct 08	21:17:49	4893	123	-17554	65	N	-a	1.4847	0.1448	-0.8769	107.9	-	-	8N	57E
0580	Nov 07	11:37:15	4892	123	-17553	103	N	a-	-1.3564	0.3989	-0.6600	181.7	-	-	16N	157W
0581	Apr 05	03:48:40	4888	123	-17548	70	P	-t	-0.7207	1.5567	0.5149	318.7	158.9	-	7S	37W
0581	Sep 28	10:10:43	4884	123	-17542	75	P	-a	0.7344	1.4962	0.5246	284.7	147.7	-	4N	135W
0582	Mar 25	06:07:28	4879	123	-17536	80	T+	pp	0.0156	2.8700	1.7894	375.7	235.6	106.0	3S	70W
0582	Sep 18	02:22:56	4874	122	-17530	85	T+	pp	0.0384	2.7673	1.8072	319.4	211.2	98.5	1S	17W
0583	Mar 14	06:21:30	4870	122	-17524	90	P	t-	0.7408	1.5346	0.4637	326.6	155.3	-	2N	72W
0583	Sep 07	17:15:09	4865	122	-17518	95	P	a-	-0.6888	1.5902	0.5981	299.5	160.0	-	6S	121E
0584	Feb 01	23:38:43	4861	122	-17513	62	N	-a	-1.3256	0.4266	-0.5752	176.0	-	-	15N	29E
0584	Mar 02	11:42:25	4860	122	-17512	100	N	a-	1.4184	0.2670	-0.7559	146.1	-	-	7N	152W
0584	Jul 28	12:22:03	4857	122	-17507	67	N	-t	1.3390	0.4315	-0.6288	193.8	-	-	17S	165W
0584	Aug 27	02:28:22	4856	122	-17506	105	N	t-	-1.4810	0.1632	-0.8816	119.0	-	-	11S	17W
0585	Jan 21	14:03:38	4852	122	-17501	72	P	-a	-0.6082	1.7262	0.7574	294.5	169.5	-	19N	173E
0585	Jul 17	13:03:58	4847	122	-17495	77	P	-t	0.6076	1.7793	0.7078	345.8	186.7	-	21S	175W
0586	Jan 11	05:49:22	4843	122	-17489	82	T+	pp	0.0627	2.7328	1.7529	323.8	212.2	97.9	22N	64W
0586	Jul 06	15:38:12	4838	122	-17483	87	T-	pp	-0.1663	2.5705	1.5355	356.2	226.1	97.6	23S	146E
0586	Dec 31	18:16:49	4834	122	-17477	92	P	a-	0.7781	1.4453	0.4156	299.3	140.0	-	24N	108E
0587	Jun 26	01:13:03	4829	122	-17471	97	P	a-	-0.9159	1.1670	0.1877	269.4	95.6	-	24S	2E
0587	Nov 21	05:07:03	4825	121	-17466	64	N	-t	-1.5020	0.1538	-0.9489	121.3	-	-	19N	59W
0587	Dec 20	23:45:52	4824	121	-17465	102	N	t-	1.5239	0.1052	-0.9808	98.7	-	-	25N	24E
0588	May 16	10:10:35	4820	121	-17460	69	P	-a	0.8795	1.2145	0.2733	260.5	109.7	-	19S	134W
0588	Nov 09	04:15:27	4816	121	-17454	74	P	-t	-0.8282	1.3852	0.2923	318.6	127.0	-	17N	47W
0589	May 06	02:27:03	4811	121	-17448	79	T+	-p	0.1524	2.5629	1.5933	327.2	214.2	95.7	17S	18W
0589	Oct 29	08:13:46	4807	121	-17442	84	T-	pp	-0.1025	2.6903	1.6500	349.7	222.6	99.4	14N	107W
0590	Apr 25	13:36:29	4802	121	-17436	89	P	t-	-0.6338	1.7077	0.6827	322.5	176.1	-	14S	175E
0590	Oct 18	19:32:39	4797	121	-17430	94	P	a-	0.5948	1.7590	0.7742	302.3	173.7	-	11N	83E
0591	Mar 16	01:16:41	4794	121	-17425	61	N	-t	1.4776	0.1898	-0.8954	134.1	-	-	2N	4E
0591	Apr 14	17:27:17	4793	121	-17424	99	N	t-	-1.4260	0.2772	-0.7934	159.4	-	-	11S	117E
0591	Sep 09	02:01:36	4789	121	-17419	66	N	-a	-1.3533	0.3565	-0.6071	156.1	-	-	6S	11W
0591	Oct 08	11:11:40	4788	121	-17418	104	N	a-	1.2515	0.5431	-0.4200	187.6	-	-	8N	152W
0592	Mar 04	02:16:34	4784	121	-17413	71	P	-t	0.7366	1.5375	0.4759	322.2	155.2	-	6N	11W
0592	Aug 28	15:46:56	4780	121	-17407	76	P	-a	-0.6827	1.6077	0.6028	306.1	162.9	-	9S	143E
0593	Feb 21	09:36:03	4775	120	-17401	81	T-	pp	-0.0215	2.8231	1.8140	339.8	220.0	101.2	10N	120W
0593	Aug 17	23:02:21	4771	120	-17395	86	T+	pp	0.0573	2.7812	1.7249	364.5	230.9	104.0	13S	35E
0594	Feb 10	23:16:38	4766	120	-17389	91	P	a-	-0.7173	1.5261	0.5572	285.2	150.9	-	13N	35E
0594	Aug 07	00:09:53	4761	120	-17383	96	P	t-	0.8109	1.4093	0.3316	322.6	135.9	-	16S	18E

0595 Jan 02	04:35:56	4757	120	-17378	63	N	-a	1.2938	0.4800	-0.5120	182.6	-	-	24N	47W
0595 Jan 31	15:21:27	4757	120	-17377	101	N	a-	-1.3839	0.3033	-0.6661	144.4	-	-	15N	153E
0595 Jun 27	13:08:10	4753	120	-17372	68	N	-t	-1.2258	0.6183	-0.4005	217.9	-	-	25S	177W
0595 Jul 27	01:33:03	4752	120	-17371	106	Nb	t-	1.5223	0.0899	-0.9597	90.1	-	-	18S	3W
0595 Dec 22	15:18:25	4748	120	-17366	73	P	-a	0.6565	1.6776	0.6297	320.4	169.2	-	24N	151E
0596 Jun 16	00:43:03	4744	120	-17360	78	T	-a	-0.4118	2.0849	1.1196	316.0	198.0	51.0	24S	8E
0596 Dec 10	18:39:49	4739	120	-17354	83	T-	pp	-0.0265	2.8585	1.7610	375.1	233.4	104.3	23N	99E
0597 Jun 05	17:11:13	4735	120	-17348	88	T	p-	0.3382	2.2070	1.2671	309.3	199.9	71.2	23S	121E
0597 Nov 29	17:39:50	4730	119	-17342	93	P	t-	-0.7031	1.6193	0.5173	338.2	164.2	-	22N	113E
0598 Apr 27	01:45:53	4726	119	-17337	60	N	-a	-1.4824	0.1305	-0.8545	100.2	-	-	16S	8W
0598 May 26	10:03:21	4725	119	-17336	98	N	a-	1.0885	0.8396	-0.1186	230.6	-	-	20S	132W
0598 Oct 20	05:32:33	4721	119	-17331	65	N	-a	1.4976	0.1208	-0.9003	98.5	-	-	13N	67W
0598 Nov 18	19:55:20	4721	119	-17330	103	N	a-	-1.3463	0.4167	-0.6407	184.8	-	-	19N	78E
0599 Apr 16	10:52:02	4717	119	-17325	70	P	-t	-0.7879	1.4337	0.3914	311.2	141.7	-	11S	144W
0599 Oct 09	18:35:35	4712	119	-17319	75	P	-a	0.7556	1.4578	0.4852	281.9	142.7	-	8N	97E
0600 Apr 04	12:58:36	4708	119	-17313	80	T-	pp	-0.0484	2.8087	1.7305	375.5	235.6	105.6	7S	175W
0600 Sep 28	10:41:54	4703	119	-17307	85	T+	-p	0.0678	2.7154	1.7516	319.8	211.0	97.7	3N	143W

7TH CENTURY CE

In the 7th century CE the total number of lunar eclipses was 255 lunar eclipses: 97 penumbral lunar eclipses, 100 partial lunar eclipses, 58 total lunar eclipses (48 central total lunar eclipses, 10 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
	ECLIPSE														
0601 Mar 24	13:29:47	4699	119	-17301	90	P	t-	0.6859	1.6324	0.5670	331.8	168.6	-	2S	179E
0601 Sep 18	01:11:23	4694	119	-17295	95	P	a-	-0.6535	1.6580	0.6599	304.6	166.8	-	2S	0E
0602 Feb 12	07:55:14	4690	119	-17290	62	N	-a	-1.3430	0.3919	-0.6044	168.6	-	-	12N	95W

0602 Mar 13	19:24:36	4689	119	-17289	100	N	a-	1.3740	0.3452	-0.6712	164.2	-	-	3N	91E
0602 Aug 08	19:10:19	4686	119	-17284	67	N	-t	1.4094	0.3050	-0.7603	165.4	-	-	14S	92E
0602 Sep 07	09:51:07	4685	119	-17283	105	N	t-	-1.4382	0.2449	-0.8063	145.3	-	-	7S	129W
0603 Feb 01	22:39:11	4681	118	-17278	72	P	-a	-0.6238	1.6961	0.7303	292.6	167.1	-	16N	44E
0603 Jul 28	19:38:11	4676	118	-17272	77	P	-t	0.6849	1.6381	0.5652	337.4	170.7	-	18S	86E
0604 Jan 22	14:28:45	4672	118	-17266	82	T+	pp	0.0521	2.7522	1.7726	324.5	212.7	98.4	19N	166E
0604 Jul 16	22:28:39	4667	118	-17260	87	T-	pp	-0.0888	2.7120	1.6784	356.4	227.7	102.5	21S	43E
0605 Jan 11	02:44:21	4663	118	-17254	92	P	a-	0.7734	1.4546	0.4235	301.0	141.5	-	22N	19W
0605 Jul 06	08:27:00	4658	118	-17248	97	P	a-	-0.8395	1.3062	0.3290	279.5	123.7	-	24S	107W
0605 Dec 01	13:09:39	4654	118	-17243	64	N	-t	-1.5094	0.1412	-0.9632	116.5	-	-	21N	179W
0605 Dec 31	07:55:02	4653	118	-17242	102	N	t-	1.5211	0.1109	-0.9762	101.6	-	-	24N	97W
0606 May 27	17:37:48	4650	118	-17237	69	P	-a	0.9530	1.0796	0.1387	249.4	79.7	-	21S	114E
0606 Jun 26	00:10:52	4649	118	-17236	107	Nb	a-	-1.5280	0.0254	-0.9171	42.5	-	-	25S	17E
0606 Nov 20	12:19:26	4645	118	-17231	74	P	-t	-0.8353	1.3719	0.2794	317.0	124.2	-	20N	168W
0607 May 17	09:46:14	4640	118	-17225	79	T+	-p	0.2259	2.4289	1.4578	326.4	211.8	89.0	20S	129W
0607 Nov 09	16:35:30	4636	118	-17219	84	T-	pp	-0.1116	2.6728	1.6338	348.4	221.8	98.7	18N	127E
0608 May 05	20:34:26	4631	117	-17213	89	P	t-	-0.5618	1.8405	0.8140	330.4	188.6	-	18S	69E
0608 Oct 29	04:07:30	4627	117	-17207	94	P	a-	0.5801	1.7860	0.8010	303.0	175.5	-	15N	47W
0609 Mar 26	08:16:34	4623	117	-17202	61	Ne	-t	1.5327	0.0870	-0.9947	91.5	-	-	2S	103W
0609 Apr 25	00:08:24	4622	117	-17201	99	N	t-	-1.3556	0.4057	-0.6639	190.7	-	-	15S	16E
0609 Sep 19	10:09:36	4618	117	-17196	66	N	-a	-1.3913	0.2891	-0.6791	141.8	-	-	2S	134W
0609 Oct 18	19:44:05	4618	117	-17195	104	N	a-	1.2324	0.5794	-0.3864	193.3	-	-	12N	79E
0610 Mar 15	09:40:04	4614	117	-17190	71	P	-t	0.7807	1.4535	0.3981	315.0	143.3	-	2N	123W
0610 Sep 08	23:29:14	4609	117	-17184	76	P	-a	-0.7300	1.5242	0.5129	302.5	152.9	-	5S	26E
0611 Mar 04	17:32:21	4605	117	-17178	81	T+	pp	0.0142	2.8333	1.8304	338.2	219.5	101.2	5N	119E
0611 Aug 29	06:10:17	4600	117	-17172	86	T-	pp	-0.0000	2.8893	1.8271	366.4	231.7	104.9	9S	74W
0612 Feb 22	07:36:59	4596	117	-17166	91	P	a-	-0.6889	1.5762	0.6114	287.4	156.5	-	9N	92W
0612 Aug 17	06:57:43	4591	117	-17160	96	P	t-	0.7444	1.5326	0.4522	331.9	155.8	-	12S	85W
0613 Jan 12	13:15:20	4587	117	-17155	63	N	-a	1.3047	0.4604	-0.5324	179.6	-	-	22N	176W
0613 Feb 10	23:50:02	4586	117	-17154	101	N	a-	-1.3652	0.3370	-0.6311	151.8	-	-	12N	25E
0613 Jul 07	20:04:01	4583	116	-17149	68	N	-t	-1.2967	0.4871	-0.5294	195.1	-	-	24S	79E
0613 Aug 06	08:29:00	4582	116	-17148	106	N	t-	1.4516	0.2194	-0.8299	138.8	-	-	15S	108W
0614 Jan 01	23:42:25	4578	116	-17143	73	P	-a	0.6633	1.6660	0.6162	320.8	168.3	-	23N	26E
0614 Jun 27	08:00:16	4573	116	-17137	78	P	-a	-0.4857	1.9482	0.9850	310.2	189.9	-	24S	101W
0614 Dec 22	02:45:22	4569	116	-17131	83	T-	pp	-0.0211	2.8688	1.7704	375.8	233.8	104.5	24N	22W
0615 Jun 17	00:37:23	4564	116	-17125	88	T+	p-	0.2634	2.3444	1.4045	312.3	204.6	83.5	23S	9E
0615 Dec 11	01:44:25	4560	116	-17119	93	P	t-	-0.6973	1.6295	0.5286	338.4	165.5	-	23N	8W
0616 Jun 05	17:21:52	4555	116	-17113	98	P	a-	1.0175	0.9711	0.0108	245.3	23.0	-	22S	117E
0616 Oct 30	13:56:32	4551	116	-17108	65	N	-a	1.5043	0.1081	-0.9122	93.0	-	-	16N	166E
0616 Nov 29	04:19:01	4551	116	-17107	103	N	a-	-1.3396	0.4280	-0.6272	186.5	-	-	21N	48W

0617 Apr 26	17:47:12	4547	116	-17102	70	P	-t	-0.8606	1.3006	0.2576	301.9	117.6	-	15S	111E
0617 Oct 20	03:07:39	4542	116	-17096	75	P	-a	0.7714	1.4292	0.4557	279.7	138.7	-	12N	32W
0618 Apr 15	19:42:30	4538	116	-17090	80	T-	pp	-0.1181	2.6794	1.6036	374.5	234.4	102.6	11S	83E
0618 Oct 09	19:07:46	4533	115	-17084	85	T+	-p	0.0910	2.6746	1.7070	320.2	210.7	96.8	7N	89E
0619 Apr 04	20:30:38	4529	115	-17078	90	P	t-	0.6242	1.7429	0.6831	336.9	181.1	-	6S	72E
0619 Sep 29	09:14:52	4524	115	-17072	95	P	a-	-0.6249	1.7134	0.7093	308.9	172.0	-	3N	122W
0620 Feb 23	16:05:35	4520	115	-17067	62	N	-a	-1.3661	0.3467	-0.6440	158.6	-	-	8N	141E
0620 Mar 24	03:00:36	4520	115	-17066	100	N	a-	1.3236	0.4344	-0.5756	181.8	-	-	1S	24W
0620 Aug 19	02:05:08	4516	115	-17061	67	N	-t	1.4736	0.1895	-0.8807	132.2	-	-	11S	12W
0620 Sep 17	17:20:48	4515	115	-17060	105	N	t-	-1.4014	0.3157	-0.7418	164.7	-	-	2S	117E
0621 Feb 12	07:08:47	4511	115	-17055	72	P	-a	-0.6445	1.6565	0.6939	290.2	163.8	-	12N	84W
0621 Aug 08	02:20:41	4507	115	-17049	77	P	-t	0.7556	1.5093	0.4347	328.7	152.7	-	15S	16W
0622 Feb 01	23:02:14	4502	115	-17043	82	T+	pp	0.0370	2.7796	1.8004	325.1	213.2	98.9	16N	37E
0622 Jul 28	05:25:36	4498	115	-17037	87	T-	pp	-0.0158	2.8453	1.8130	355.7	227.9	104.1	19S	62W
0623 Jan 22	11:05:39	4493	115	-17031	92	P	a-	0.7645	1.4715	0.4393	303.1	144.2	-	20N	144W
0623 Jul 17	15:46:32	4489	115	-17025	97	P	a-	-0.7669	1.4386	0.4628	287.9	143.3	-	22S	143E
0623 Dec 12	21:11:42	4485	114	-17020	64	N	-t	-1.5166	0.1283	-0.9769	111.3	-	-	22N	61E
0624 Jan 11	15:57:32	4484	114	-17019	102	N	t-	1.5138	0.1246	-0.9630	107.7	-	-	23N	142E
0624 Jun 07	01:04:22	4480	114	-17014	69	P	-a	1.0266	0.9447	0.0034	236.9	12.8	-	22S	2E
0624 Jul 06	07:40:20	4479	114	-17013	107	N	a-	-1.4583	0.1533	-0.7894	103.2	-	-	24S	96W
0624 Nov 30	20:26:41	4476	114	-17008	74	P	-t	-0.8398	1.3632	0.2719	315.6	122.4	-	22N	70E
0625 May 27	17:01:37	4471	114	-17002	79	T	-a	0.3018	2.2907	1.3174	324.8	208.1	78.3	22S	122E
0625 Nov 20	01:02:02	4467	114	-16996	84	T-	pp	-0.1174	2.6613	1.6240	347.1	221.0	98.2	20N	0E
0626 May 17	03:25:32	4462	114	-16990	89	P	t-	-0.4851	1.9822	0.9537	337.9	199.8	-	20S	34W
0626 Nov 09	12:48:50	4458	114	-16984	94	P	a-	0.5704	1.8036	0.8189	303.1	176.6	-	18N	177W
0627 May 06	06:40:04	4453	114	-16978	99	N	t-	-1.2777	0.5482	-0.5206	219.0	-	-	18S	83W
0627 Sep 30	18:26:25	4449	114	-16973	66	N	-a	-1.4219	0.2353	-0.7374	128.9	-	-	3N	100E
0627 Oct 30	04:24:29	4448	114	-16972	104	N	a-	1.2201	0.6033	-0.3650	196.9	-	-	16N	52W
0628 Mar 25	16:54:49	4445	114	-16967	71	P	-t	0.8324	1.3556	0.3063	306.3	127.1	-	2S	126E
0628 Sep 19	07:19:02	4440	114	-16961	76	P	-a	-0.7701	1.4538	0.4361	299.3	143.1	-	1S	93W
0629 Mar 15	01:22:10	4436	113	-16955	81	T+	pp	0.0561	2.7535	1.7567	336.3	218.7	100.5	1N	0E
0629 Sep 08	13:25:48	4431	113	-16949	86	T-	pp	-0.0504	2.7999	1.7319	367.8	231.8	104.2	5S	176E
0630 Mar 04	15:51:11	4427	113	-16943	91	P	a-	-0.6552	1.6360	0.6753	290.0	162.7	-	5N	143E
0630 Aug 28	13:52:33	4422	113	-16937	96	P	t-	0.6833	1.6464	0.5629	339.5	170.7	-	8S	170E
0631 Jan 23	21:50:51	4418	113	-16932	63	N	-a	1.3184	0.4355	-0.5577	175.5	-	-	20N	55E
0631 Feb 22	08:12:13	4418	113	-16931	101	N	a-	-1.3417	0.3793	-0.5874	160.6	-	-	8N	102W
0631 Jul 19	03:04:54	4414	113	-16926	68	N	-t	-1.3643	0.3621	-0.6526	169.5	-	-	22S	27W
0631 Aug 17	15:33:13	4413	113	-16925	106	N	t-	1.3862	0.3394	-0.7098	170.3	-	-	12S	145E
0632 Jan 13	08:01:54	4409	113	-16920	73	P	-a	0.6733	1.6484	0.5973	320.8	166.7	-	22N	99W
0632 Jul 07	15:22:13	4405	113	-16914	78	P	-a	-0.5564	1.8178	0.8561	303.9	180.7	-	23S	149E

0633	Jan 01	10:48:13	4400	113	-16908	83	T-	pp	-0.0136	2.8829	1.7841	376.3	234.1	104.6	23N	142W
0633	Jun 27	08:05:20	4396	113	-16902	88	T+	p-	0.1900	2.4793	1.5388	314.6	207.9	91.5	23S	103W
0633	Dec 21	09:48:33	4391	113	-16896	93	P	t-	-0.6906	1.6409	0.5418	338.5	166.9	-	23N	128W
0634	Jun 17	00:39:36	4387	112	-16890	98	P	a-	0.9460	1.1035	0.1405	258.6	82.0	-	23S	8E
0634	Nov 10	22:26:03	4383	112	-16885	65	N	-a	1.5072	0.1022	-0.9169	90.1	-	-	20N	38E
0634	Dec 10	12:44:01	4382	112	-16884	103	N	a-	-1.3333	0.4379	-0.6144	187.8	-	-	22N	173W
0635	May 08	00:34:18	4378	112	-16879	70	P	-t	-0.9388	1.1576	0.1135	290.3	79.9	-	18S	8E
0635	Oct 31	11:46:45	4374	112	-16873	75	P	-a	0.7819	1.4103	0.4361	278.1	135.9	-	16N	162W
0636	Apr 26	02:19:00	4369	112	-16867	80	T-	pp	-0.1939	2.5395	1.4657	372.6	231.6	96.0	14S	18W
0636	Oct 20	03:40:14	4365	112	-16861	85	T+	-p	0.1087	2.6440	1.6728	320.6	210.4	96.0	12N	40W
0637	Apr 15	03:25:32	4360	112	-16855	90	P	t-	0.5566	1.8643	0.8098	341.8	192.5	-	10S	33W
0637	Oct 09	17:25:51	4356	112	-16849	95	P	a-	-0.6030	1.7566	0.7466	312.5	175.9	-	7N	114E
0638	Mar 06	00:08:03	4352	112	-16844	62	N	-a	-1.3961	0.2887	-0.6962	145.0	-	-	3N	19E
0638	Apr 04	10:29:09	4351	112	-16843	100	N	a-	1.2661	0.5367	-0.4669	199.2	-	-	5S	138W
0638	Aug 30	09:06:59	4348	112	-16838	67	N	-t	1.5314	0.0861	-0.9893	90.2	-	-	7S	119W
0638	Sep 29	00:58:35	4347	112	-16837	105	N	t-	-1.3714	0.3738	-0.6897	179.0	-	-	2N	1E
0639	Feb 23	15:30:34	4343	112	-16832	72	P	-a	-0.6720	1.6044	0.6451	287.1	159.2	-	8N	149E
0639	Aug 19	09:11:38	4339	111	-16826	77	P	-t	0.8193	1.3932	0.3168	319.9	132.5	-	12S	120W
0640	Feb 13	07:27:20	4334	111	-16820	82	T+	pp	0.0154	2.8188	1.8404	325.8	213.8	99.4	13N	90W
0640	Aug 07	12:31:37	4330	111	-16814	87	T+	pp	0.0506	2.7810	1.7494	354.3	226.9	103.2	16S	169W
0641	Feb 01	19:20:33	4325	111	-16808	92	P	a-	0.7513	1.4960	0.4632	305.7	148.0	-	17N	92E
0641	Jul 27	23:11:22	4321	111	-16802	97	P	a-	-0.6979	1.5647	0.5900	294.8	158.2	-	19S	31E
0641	Dec 23	05:14:08	4317	111	-16797	64	N	-t	-1.5232	0.1162	-0.9891	106.1	-	-	22N	59W
0642	Jan 21	23:55:52	4316	111	-16796	102	N	t-	1.5035	0.1434	-0.9440	115.6	-	-	21N	23E
0642	Jun 18	08:29:53	4312	111	-16791	69	N	-a	1.1008	0.8090	-0.1332	222.6	-	-	22S	110W
0642	Jul 17	15:12:21	4312	111	-16790	107	N	a-	-1.3905	0.2782	-0.6655	137.3	-	-	22S	151E
0642	Dec 12	04:36:49	4308	111	-16785	74	P	-t	-0.8428	1.3567	0.2674	314.3	121.2	-	23N	52W
0643	Jun 08	00:13:21	4303	111	-16779	79	T	-a	0.3801	2.1484	1.1724	322.3	202.7	60.7	23S	14E
0643	Dec 01	09:33:18	4299	111	-16773	84	T-	pp	-0.1203	2.6549	1.6200	345.8	220.4	97.8	22N	127W
0644	May 27	10:13:08	4294	111	-16767	89	T	t-	-0.4061	2.1284	1.0975	344.6	209.3	48.9	22S	137W
0644	Nov 19	21:33:53	4290	110	-16761	94	P	a-	0.5633	1.8164	0.8323	303.1	177.3	-	21N	51E
0645	May 16	13:09:17	4285	110	-16755	99	N	t-	-1.1975	0.6951	-0.3731	243.3	-	-	21S	179E
0645	Oct 11	02:49:44	4282	110	-16750	66	N	-a	-1.4471	0.1914	-0.7859	117.1	-	-	7N	27W
0645	Nov 09	13:09:14	4281	110	-16749	104	N	a-	1.2116	0.6201	-0.3504	199.5	-	-	19N	177E
0646	Apr 06	00:03:56	4277	110	-16744	71	P	-t	0.8894	1.2479	0.2046	296.1	105.1	-	6S	18E
0646	Sep 30	15:15:47	4273	110	-16738	76	P	-a	-0.8039	1.3951	0.3711	296.6	133.7	-	3N	147E
0647	Mar 26	09:04:54	4268	110	-16732	81	T+	pp	0.1047	2.6612	1.6705	334.1	217.4	98.7	3S	117W
0647	Sep 19	20:49:51	4264	110	-16726	86	T-	pp	-0.0934	2.7238	1.6501	368.8	231.4	102.5	1S	64E
0648	Mar 14	23:56:12	4259	110	-16720	91	P	a-	-0.6134	1.7108	0.7540	293.3	169.5	-	1N	21E
0648	Sep 07	20:58:33	4255	110	-16714	96	P	t-	0.6306	1.7445	0.6581	345.5	181.6	-	4S	62E

0649 Feb 03	06:18:29	4251	110	-16709	63	N	-a	1.3385	0.3986	-0.5947	168.9	-	-	17N	72W
0649 Mar 04	16:25:24	4250	110	-16708	101	N	a-	-1.3113	0.4345	-0.5309	171.3	-	-	4N	134E
0649 Jul 29	10:13:03	4246	110	-16703	68	N	-t	-1.4270	0.2464	-0.7669	140.8	-	-	20S	134W
0649 Aug 27	22:47:09	4246	110	-16702	106	N	t-	1.3272	0.4477	-0.6016	193.1	-	-	8S	35E
0650 Jan 23	16:14:28	4242	109	-16697	73	P	-a	0.6884	1.6211	0.5691	320.2	163.9	-	19N	138E
0650 Jul 18	22:48:08	4238	109	-16691	78	P	-a	-0.6246	1.6922	0.7312	297.1	170.1	-	21S	37E
0651 Jan 12	18:45:46	4233	109	-16685	83	T-	pp	-0.0020	2.9038	1.8056	376.7	234.4	104.8	21N	99E
0651 Jul 08	15:34:31	4229	109	-16679	88	T+	pp	0.1176	2.6129	1.6710	316.3	210.2	96.4	22S	145E
0652 Jan 01	17:51:48	4224	109	-16673	93	P	t-	-0.6824	1.6544	0.5581	338.6	168.7	-	22N	112E
0652 Jun 27	07:56:47	4220	109	-16667	98	P	a-	0.8747	1.2361	0.2697	270.7	111.8	-	23S	102W
0652 Nov 21	07:00:55	4216	109	-16662	65	N	-a	1.5069	0.1019	-0.9156	89.7	-	-	22N	90W
0652 Dec 20	21:10:09	4215	109	-16661	103	N	a-	-1.3271	0.4477	-0.6013	189.0	-	-	22N	61E
0653 May 18	07:16:00	4211	109	-16656	70	Nx	-t	-1.0205	1.0086	-0.0370	276.2	-	-	21S	93W
0653 Nov 10	20:31:53	4207	109	-16650	75	P	-a	0.7881	1.3992	0.4245	277.0	134.1	-	19N	66E
0654 May 07	08:49:03	4202	109	-16644	80	T	pp	-0.2748	2.3899	1.3181	369.5	227.0	84.2	18S	116W
0654 Oct 31	12:19:13	4198	109	-16638	85	T+	-p	0.1207	2.6236	1.6490	321.1	210.3	95.3	15N	171W
0655 Apr 26	10:15:15	4194	109	-16632	90	P	t-	0.4835	1.9958	0.9464	346.2	202.5	-	14S	137W
0655 Oct 21	01:43:07	4189	108	-16626	95	P	a-	-0.5870	1.7889	0.7733	315.4	178.7	-	11N	12W
0656 Mar 16	08:03:55	4185	108	-16621	62	N	-a	-1.4321	0.2198	-0.7595	126.8	-	-	1S	102W
0656 Apr 14	17:52:59	4185	108	-16620	100	N	a-	1.2036	0.6484	-0.3493	215.5	-	-	9S	109E
0656 Oct 09	08:43:39	4180	108	-16614	105	N	t-	-1.3474	0.4207	-0.6487	189.8	-	-	6N	116W
0657 Mar 05	23:46:03	4176	108	-16609	72	P	-a	-0.7048	1.5427	0.5865	283.4	153.2	-	4N	24E
0657 Aug 29	16:10:53	4172	108	-16603	77	P	-t	0.8766	1.2890	0.2108	311.0	109.7	-	8S	134E
0658 Feb 23	15:45:12	4168	108	-16597	82	T-	pp	-0.0117	2.8253	1.8475	326.5	214.3	99.6	9N	145E
0658 Aug 18	19:46:10	4163	108	-16591	87	T+	pp	0.1107	2.6705	1.6394	352.4	225.1	100.5	12S	81E
0659 Feb 13	03:25:24	4159	108	-16585	92	P	h-	0.7306	1.5341	0.5010	309.2	153.5	-	13N	30W
0659 Aug 08	06:44:12	4154	108	-16579	97	P	a-	-0.6347	1.6804	0.7061	300.3	169.4	-	16S	83W
0660 Jan 03	13:12:36	4150	108	-16574	64	N	-t	-1.5327	0.0985	-1.0060	97.8	-	-	21N	179W
0660 Feb 02	07:44:57	4150	108	-16573	102	N	t-	1.4864	0.1744	-0.9122	127.3	-	-	17N	95W
0660 Jun 28	15:57:23	4146	108	-16568	69	N	-a	1.1732	0.6771	-0.2669	206.7	-	-	22S	138E
0660 Jul 27	22:50:33	4145	108	-16567	107	N	a-	-1.3275	0.3946	-0.5505	161.7	-	-	20S	36E
0660 Dec 22	12:45:36	4142	107	-16562	74	P	-t	-0.8473	1.3471	0.2605	312.7	119.5	-	23N	173W
0661 Jun 18	07:24:28	4137	107	-16556	79	T	-a	0.4580	2.0072	1.0278	319.0	195.6	25.6	23S	94W
0661 Dec 11	18:06:38	4133	107	-16550	84	T-	pp	-0.1220	2.6502	1.6182	344.4	219.8	97.6	23N	105E
0662 Jun 07	16:55:20	4128	107	-16544	89	T	pp	-0.3235	2.2814	1.2477	350.6	217.2	74.3	23S	122E
0662 Dec 01	06:23:19	4124	107	-16538	94	P	a-	0.5596	1.8226	0.8396	302.8	177.5	-	23N	81W
0663 May 27	19:32:40	4119	107	-16532	99	N	t-	-1.1128	0.8506	-0.2176	265.2	-	-	23S	82E
0663 Oct 22	11:20:51	4116	107	-16527	66	N	-a	-1.4659	0.1591	-0.8225	107.4	-	-	11N	156W
0663 Nov 20	21:59:03	4115	107	-16526	104	N	a-	1.2074	0.6286	-0.3438	200.9	-	-	22N	44E
0664 Apr 16	07:06:09	4111	107	-16521	71	P	-t	0.9526	1.1289	0.0915	284.1	71.2	-	10S	89W

0664	Oct 10	23:20:29	4107	107	-16515	76	P	-a	-0.8302	1.3499	0.3198	294.6	125.5	-	7N	24E
0665	Apr 05	16:41:53	4102	107	-16509	81	T+	pp	0.1590	2.5586	1.5738	331.5	215.4	95.3	7S	127E
0665	Sep 30	04:20:41	4098	107	-16503	86	T-	pp	-0.1303	2.6589	1.5797	369.6	230.7	100.2	4N	51W
0666	Mar 26	07:55:27	4093	106	-16497	91	P	a-	-0.5666	1.7947	0.8418	296.6	176.4	-	4S	101W
0666	Sep 19	04:12:54	4089	106	-16491	96	P	t-	0.5843	1.8309	0.7417	350.2	189.9	-	0S	48W
0667	Feb 14	14:38:40	4085	106	-16486	63	N	-a	1.3642	0.3515	-0.6416	159.7	-	-	13N	162E
0667	Mar 16	00:30:10	4085	106	-16485	101	N	a-	-1.2745	0.5013	-0.4628	183.0	-	-	0S	11E
0667	Aug 09	17:28:45	4081	106	-16480	68	N	-t	-1.4843	0.1409	-0.8715	107.1	-	-	17S	116E
0667	Sep 08	06:11:00	4080	106	-16479	106	N	t-	1.2751	0.5434	-0.5061	210.2	-	-	4S	77W
0668	Feb 04	00:19:59	4076	106	-16474	73	P	-a	0.7086	1.5842	0.5318	318.9	159.9	-	16N	16E
0668	Jul 29	06:20:39	4072	106	-16468	78	P	-a	-0.6878	1.5760	0.6154	290.2	158.7	-	19S	77W
0669	Jan 23	02:37:24	4068	106	-16462	83	T+	pp	0.0142	2.8810	1.7839	377.0	234.7	105.0	19N	19W
0669	Jul 18	23:08:23	4063	106	-16456	88	T+	pp	0.0491	2.7395	1.7958	317.3	211.3	98.9	21S	31E
0670	Jan 12	01:51:31	4059	106	-16450	93	P	t-	-0.6709	1.6738	0.5808	338.9	171.3	-	21N	8W
0670	Jul 08	15:14:49	4054	106	-16444	98	P	a-	0.8045	1.3668	0.3964	281.5	133.5	-	22S	149E
0670	Dec 02	15:39:04	4051	106	-16439	65	N	-a	1.5049	0.1045	-0.9108	90.5	-	-	24N	140E
0671	Jan 01	05:34:57	4050	106	-16438	103	N	a-	-1.3189	0.4606	-0.5842	190.7	-	-	22N	65W
0671	May 29	13:53:08	4046	106	-16433	70	N	-t	-1.1049	0.8546	-0.1930	259.2	-	-	23S	167E
0671	Nov 22	05:20:40	4042	105	-16427	75	P	-a	0.7918	1.3924	0.4177	276.3	133.0	-	22N	66W
0672	May 17	15:15:08	4037	105	-16421	80	T	-t	-0.3591	2.2345	1.1642	365.2	220.3	63.9	20S	147E
0672	Nov 10	21:03:16	4033	105	-16415	85	T+	-p	0.1287	2.6104	1.6329	321.7	210.3	94.8	19N	58E
0673	May 06	17:00:58	4029	105	-16409	90	T	t-	0.4062	2.1351	1.0906	350.0	211.0	47.6	17S	120E
0673	Oct 31	10:05:57	4024	105	-16403	95	P	a-	-0.5761	1.8115	0.7906	317.8	180.6	-	15N	138W
0674	Mar 27	15:52:32	4020	105	-16398	62	N	-a	-1.4746	0.1392	-0.8346	101.3	-	-	5S	139E
0674	Apr 26	01:11:26	4020	105	-16397	100	N	a-	1.1355	0.7706	-0.2215	231.0	-	-	13S	2W
0674	Oct 20	16:36:28	4015	105	-16391	105	N	t-	-1.3303	0.4549	-0.6199	197.4	-	-	10N	124E
0675	Mar 17	07:51:46	4012	105	-16386	72	P	-a	-0.7458	1.4658	0.5127	278.6	144.9	-	0S	99W
0675	Sep 09	23:20:53	4007	105	-16380	77	P	-t	0.9253	1.2006	0.1204	302.8	83.9	-	3S	25E
0676	Mar 05	23:53:58	4003	105	-16374	82	T-	pp	-0.0459	2.7622	1.7850	327.1	214.6	99.4	4N	21E
0676	Aug 29	03:10:42	3998	105	-16368	87	T+	pp	0.1636	2.5734	1.5426	350.1	222.7	96.5	8S	31W
0677	Feb 23	11:22:11	3994	104	-16362	92	P	h-	0.7041	1.5828	0.5496	313.2	160.0	-	9N	150W
0677	Aug 18	14:24:44	3990	104	-16356	97	P	a-	-0.5772	1.7860	0.8117	304.6	177.9	-	13S	161E
0678	Jan 13	21:08:14	3986	104	-16351	64	N	-t	-1.5442	0.0766	-1.0264	86.4	-	-	20N	63E
0678	Feb 12	15:27:00	3985	104	-16350	102	N	t-	1.4639	0.2150	-0.8703	141.1	-	-	14N	149E
0678	Jul 09	23:25:24	3982	104	-16345	69	N	-a	1.2448	0.5468	-0.3994	188.5	-	-	21S	26E
0678	Aug 08	06:33:02	3981	104	-16344	107	N	a-	-1.2678	0.5050	-0.4420	181.1	-	-	17S	81W
0679	Jan 02	20:54:50	3977	104	-16339	74	P	-t	-0.8519	1.3368	0.2537	310.9	117.8	-	22N	65E
0679	Jun 29	14:34:57	3973	104	-16333	79	P	-a	0.5353	1.8673	0.8839	314.8	186.7	-	23S	158E
0679	Dec 23	02:40:16	3968	104	-16327	84	T-	pp	-0.1242	2.6445	1.6159	343.0	219.2	97.3	23N	23W
0680	Jun 17	23:37:04	3964	104	-16321	89	T-	pp	-0.2414	2.4338	1.3967	355.5	223.3	89.2	24S	22E

0680 Dec 11	15:13:56	3960	104	-16315	94	P	a-	0.5569	1.8269	0.8453	302.3	177.7	-	24N	147E
0681 Jun 07	01:55:08	3955	104	-16309	99	Nx	t-	-1.0268	1.0085	-0.0599	284.3	-	-	24S	13W
0681 Nov 01	19:56:20	3952	104	-16304	66	N	-a	-1.4809	0.1335	-0.8522	98.8	-	-	14N	74E
0681 Dec 01	06:50:21	3951	104	-16303	104	N	a-	1.2049	0.6341	-0.3399	201.9	-	-	24N	88W
0682 Apr 27	14:04:38	3947	104	-16298	71	Nx	-t	1.0195	1.0033	-0.0285	270.2	-	-	14S	165E
0682 Oct 22	07:30:56	3943	103	-16292	76	P	-a	-0.8513	1.3142	0.2783	293.2	118.1	-	11N	100W
0683 Apr 17	00:12:00	3938	103	-16286	81	T+	-p	0.2199	2.4440	1.4647	328.4	212.5	89.6	11S	13E
0683 Oct 11	12:00:06	3934	103	-16280	86	T-	pp	-0.1596	2.6077	1.5233	370.3	230.0	97.7	8N	167W
0684 Apr 05	15:46:49	3930	103	-16274	91	P	a-	-0.5128	1.8917	0.9421	300.2	183.3	-	8S	140E
0684 Sep 29	11:37:10	3925	103	-16268	96	P	t-	0.5457	1.9030	0.8113	353.7	196.0	-	4N	161W
0685 Feb 24	22:49:16	3922	103	-16263	63	N	-a	1.3971	0.2910	-0.7020	146.5	-	-	9N	38E
0685 Mar 26	08:26:10	3921	103	-16262	101	N	a-	-1.2311	0.5805	-0.3826	195.8	-	-	4S	110W
0685 Aug 20	00:54:03	3917	103	-16257	68	Ne	-h	-1.5347	0.0480	-0.9637	62.8	-	-	13S	4E
0685 Sep 18	13:45:50	3916	103	-16256	106	N	h-	1.2308	0.6247	-0.4251	222.9	-	-	0N	168E
0686 Feb 14	08:15:45	3913	103	-16251	73	P	-h	0.7361	1.5337	0.4813	316.6	153.8	-	13N	103W
0686 Aug 09	13:58:56	3908	103	-16245	78	P	-a	-0.7469	1.4679	0.5070	283.1	146.2	-	16S	168E
0687 Feb 03	10:21:29	3904	103	-16239	83	T+	pp	0.0364	2.8393	1.7440	377.0	234.8	104.8	16N	135W
0687 Jul 30	06:46:14	3900	103	-16233	88	T-	pp	-0.0160	2.8014	1.8552	317.9	211.6	99.3	18S	84W
0688 Jan 23	09:46:17	3895	102	-16227	93	P	t-	-0.6546	1.7017	0.6128	339.6	174.7	-	18N	127W
0688 Jul 18	22:35:27	3891	102	-16221	98	P	a-	0.7370	1.4931	0.5181	291.0	150.2	-	20S	38E
0688 Dec 13	00:20:04	3887	102	-16216	65	N	-a	1.5018	0.1088	-0.9037	92.0	-	-	25N	11E
0689 Jan 11	13:58:28	3887	102	-16215	103	N	a-	-1.3086	0.4771	-0.5630	193.1	-	-	20N	169E
0689 Jun 08	20:26:29	3883	102	-16210	70	N	-t	-1.1913	0.6974	-0.3525	238.6	-	-	24S	69E
0689 Jul 08	09:04:28	3882	102	-16209	108	Nb	t-	1.5563	0.0164	-1.0112	37.8	-	-	21S	120W
0689 Dec 02	14:12:49	3879	102	-16204	75	P	-a	0.7932	1.3897	0.4153	275.8	132.6	-	23N	161E
0690 May 28	21:37:56	3874	102	-16198	80	T	-t	-0.4462	2.0741	1.0051	359.4	211.1	11.9	22S	50E
0690 Nov 22	05:51:09	3870	102	-16192	85	T+	-p	0.1330	2.6040	1.6238	322.4	210.4	94.6	21N	74W
0691 May 17	23:43:45	3865	102	-16186	90	T	t-	0.3255	2.2809	1.2408	352.9	217.9	73.7	20S	19E
0691 Nov 11	18:33:30	3861	102	-16180	95	P	a-	-0.5698	1.8254	0.7997	319.8	181.8	-	18N	94E
0692 Apr 06	23:35:55	3857	102	-16175	62	Ne	-a	-1.5217	0.0501	-0.9185	61.1	-	-	9S	22E
0692 May 06	08:27:43	3857	102	-16174	100	N	a-	1.0646	0.8981	-0.0889	245.1	-	-	16S	112W
0692 Oct 31	00:33:35	3852	102	-16168	105	N	t-	-1.3170	0.4817	-0.5980	203.4	-	-	14N	4E
0693 Mar 27	15:51:47	3849	102	-16163	72	P	-a	-0.7917	1.3803	0.4299	272.9	134.4	-	5S	139E
0693 Sep 20	06:40:32	3844	101	-16157	77	P	-t	0.9666	1.1258	0.0439	295.3	51.1	-	1N	86W
0694 Mar 17	07:53:51	3840	101	-16151	82	T-	-p	-0.0871	2.6864	1.7098	327.5	214.6	98.5	0N	100W
0694 Sep 09	10:45:01	3836	101	-16145	87	T+	pp	0.2092	2.4896	1.4589	347.8	220.1	91.6	4S	146W
0695 Mar 06	19:07:51	3831	101	-16139	92	P	t-	0.6692	1.6469	0.6136	318.1	167.9	-	5N	92E
0695 Aug 29	22:14:38	3827	101	-16133	97	P	a-	-0.5269	1.8784	0.9039	307.9	184.3	-	9S	42E
0696 Jan 25	04:55:53	3823	101	-16128	64	N	-t	-1.5616	0.0435	-1.0572	65.3	-	-	17N	54W
0696 Feb 23	22:57:40	3823	101	-16127	102	N	t-	1.4327	0.2714	-0.8124	157.9	-	-	10N	36E

0696 Jul 20	06:58:13	3819	101	-16122	69	N	-a	1.3120	0.4251	-0.5241	168.5	-	-	19S	88W
0696 Aug 18	14:23:46	3818	101	-16121	107	N	a-	-1.2149	0.6033	-0.3462	196.1	-	-	13S	161E
0697 Jan 13	04:59:57	3815	101	-16116	74	P	-t	-0.8601	1.3197	0.2407	308.5	114.8	-	20N	56W
0697 Jul 09	21:45:46	3810	101	-16110	79	P	-a	0.6114	1.7301	0.7422	309.8	175.9	-	22S	50E
0698 Jan 02	11:12:42	3806	101	-16104	84	T-	pp	-0.1280	2.6354	1.6110	341.5	218.6	97.0	23N	150W
0698 Jun 29	06:16:51	3802	101	-16098	89	T-	pp	-0.1586	2.5876	1.5466	359.5	227.7	98.6	23S	78W
0698 Dec 23	00:04:38	3797	101	-16092	94	P	a-	0.5538	1.8315	0.8520	301.9	177.9	-	24N	16E
0699 Jun 18	08:15:26	3793	100	-16086	99	P	t-	-0.9387	1.1705	0.1014	301.2	77.7	-	24S	109W
0699 Nov 13	04:37:47	3789	100	-16081	66	N	-a	-1.4911	0.1167	-0.8727	92.8	-	-	17N	56W
0699 Dec 12	15:43:37	3789	100	-16080	104	N	a-	1.2043	0.6357	-0.3393	202.4	-	-	25N	139E
0700 May 07	20:59:13	3785	100	-16075	71	N	-t	1.0904	0.8708	-0.1558	254.1	-	-	17S	60E
0700 Nov 01	15:46:42	3781	100	-16069	76	P	-a	-0.8672	1.2875	0.2463	292.3	112.0	-	15N	136E

8TH CENTURY CE

In the 8th century CE the total number of lunar eclipses was 240 lunar eclipses: 84 penumbral lunar eclipses, 88 partial lunar eclipses, 68 total lunar eclipses (45 central total lunar eclipses, 23 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
ECLIPSE															
0701 Apr 27	07:38:40	3776	100	-16063	81	T	-p	0.2845	2.3229	1.3486	324.7	208.5	80.9	15S	100W
0701 Oct 21	19:46:29	3772	100	-16057	86	T-	pp	-0.1827	2.5676	1.4785	370.9	229.3	95.4	12N	76E
0702 Apr 16	23:31:56	3768	100	-16051	91	T	a-	-0.4536	1.9987	1.0522	303.8	189.8	33.6	12S	22E
0702 Oct 10	19:10:32	3763	100	-16045	96	P	t-	0.5141	1.9621	0.8682	356.4	200.5	-	8N	85E
0703 Mar 08	06:51:41	3760	100	-16040	63	N	-a	1.4361	0.2193	-0.7734	128.4	-	-	5N	84W
0703 Apr 06	16:14:32	3759	100	-16039	101	N	a-	-1.1821	0.6701	-0.2923	208.9	-	-	9S	132E
0703 Sep 29	21:30:31	3755	100	-16033	106	N	h-	1.1935	0.6933	-0.3567	232.6	-	-	5N	50E
0704 Feb 25	16:02:20	3751	100	-16028	73	P	-h	0.7705	1.4706	0.4183	313.2	145.2	-	9N	139E

0704 Aug 19	21:45:52	3747	100	-16022	78	P	-a	-0.7994	1.3719	0.4104	276.3	133.2	-	12S	50E
0705 Feb 13	17:58:03	3743	99	-16016	83	T+	pp	0.0648	2.7861	1.6929	376.9	234.7	104.3	12N	110E
0705 Aug 09	14:29:13	3738	99	-16010	88	T-	pp	-0.0768	2.6914	1.7422	318.0	211.1	98.0	15S	159E
0706 Feb 02	17:35:24	3734	99	-16004	93	P	t-	-0.6330	1.7391	0.6548	340.7	179.0	-	15N	116E
0706 Jul 30	05:59:42	3730	99	-15998	98	P	a-	0.6728	1.6135	0.6335	299.4	163.6	-	17S	74W
0706 Dec 24	08:59:49	3726	99	-15993	65	N	-a	1.5003	0.1099	-0.8993	92.2	-	-	25N	118W
0707 Jan 22	22:16:05	3725	99	-15992	103	N	a-	-1.2929	0.5033	-0.5315	197.0	-	-	18N	45E
0707 Jun 20	02:58:38	3722	99	-15987	70	N	-t	-1.2775	0.5406	-0.5121	214.0	-	-	25S	29W
0707 Jul 19	15:57:21	3721	99	-15986	108	N	t-	1.4879	0.1445	-0.8882	111.6	-	-	19S	137E
0707 Dec 13	23:05:26	3717	99	-15981	75	P	-a	0.7947	1.3864	0.4129	275.3	132.1	-	24N	29E
0708 Jun 08	04:00:25	3713	99	-15975	80	P	-t	-0.5334	1.9136	0.8455	352.4	199.3	-	24S	45W
0708 Dec 02	14:40:16	3709	99	-15969	85	T+	-p	0.1362	2.5993	1.6169	323.0	210.5	94.4	23N	154E
0709 May 28	06:25:53	3704	99	-15963	90	T+	p-	0.2432	2.4300	1.3940	354.9	223.0	88.9	22S	82W
0709 Nov 22	03:04:42	3700	99	-15957	95	P	a-	-0.5671	1.8326	0.8027	321.4	182.6	-	20N	33W
0710 May 17	15:39:22	3696	98	-15951	100	P	a-	0.9887	1.0351	0.0527	258.2	51.8	-	19S	139E
0710 Nov 11	08:37:39	3692	98	-15945	105	N	t-	-1.3096	0.4975	-0.5864	207.0	-	-	17N	117W
0711 Apr 07	23:42:52	3688	98	-15940	72	P	-a	-0.8454	1.2806	0.3327	265.8	119.9	-	9S	20E
0711 Oct 01	14:11:04	3684	98	-15934	77	Nx	-t	0.9994	1.0663	-0.0171	288.9	-	-	5N	160E
0712 Mar 27	15:44:16	3679	98	-15928	82	T-	-p	-0.1357	2.5970	1.6207	327.5	214.1	96.3	4S	140E
0712 Sep 19	18:30:11	3675	98	-15922	87	T+	-p	0.2469	2.4204	1.3897	345.4	217.4	86.5	0N	96E
0713 Mar 17	02:44:54	3671	98	-15916	92	P	t-	0.6280	1.7225	0.6892	323.3	176.3	-	1N	24W
0713 Sep 09	06:11:51	3667	98	-15910	97	P	a-	-0.4821	1.9609	0.9858	310.5	189.2	-	5S	79W
0714 Feb 04	12:38:35	3663	98	-15905	64	Ne	-t	-1.5827	0.0034	-1.0945	18.4	-	-	14N	171W
0714 Mar 06	06:20:29	3662	98	-15904	102	N	t-	1.3956	0.3386	-0.7432	175.5	-	-	6N	77W
0714 Jul 31	14:33:49	3659	98	-15899	69	N	-a	1.3764	0.3087	-0.6439	145.5	-	-	16S	158E
0714 Aug 29	22:20:17	3658	98	-15898	107	N	a-	-1.1669	0.6928	-0.2595	208.4	-	-	9S	40E
0715 Jan 24	13:00:56	3654	98	-15893	74	P	-t	-0.8723	1.2948	0.2207	305.3	109.9	-	18N	176W
0715 Jul 21	04:58:57	3650	98	-15887	79	P	-a	0.6845	1.5985	0.6055	304.0	163.0	-	20S	59W
0716 Jan 13	19:42:36	3646	97	-15881	84	T-	pp	-0.1345	2.6212	1.6014	339.9	217.9	96.5	21N	83E
0716 Jul 09	12:58:51	3642	97	-15875	89	T-	pp	-0.0783	2.7371	1.6919	362.4	230.5	103.7	22S	179W
0717 Jan 02	08:52:50	3637	97	-15869	94	P	a-	0.5485	1.8400	0.8629	301.7	178.5	-	23N	116W
0717 Jun 28	14:38:27	3633	97	-15863	99	P	t-	-0.8525	1.3291	0.2591	315.5	121.4	-	24S	156E
0717 Nov 23	13:21:34	3629	97	-15858	66	N	-a	-1.4991	0.1037	-0.8891	87.8	-	-	20N	173E
0717 Dec 23	00:35:25	3629	97	-15857	104	N	a-	1.2030	0.6384	-0.3371	203.0	-	-	25N	7E
0718 May 19	03:51:08	3625	97	-15852	71	N	-t	1.1638	0.7335	-0.2883	235.4	-	-	19S	44W
0718 Nov 13	00:06:56	3621	97	-15846	76	P	-a	-0.8787	1.2689	0.2228	292.0	107.2	-	18N	10E
0719 May 08	15:00:54	3617	97	-15840	81	T	-p	0.3533	2.1944	1.2247	320.2	203.3	67.6	18S	149E
0719 Nov 02	03:38:57	3612	97	-15834	86	T-	pp	-0.2002	2.5376	1.4444	371.5	228.7	93.3	16N	43W
0720 Apr 27	07:11:07	3608	97	-15828	91	T	a-	-0.3894	2.1154	1.1712	307.2	195.8	58.7	15S	94W
0720 Oct 21	02:53:19	3604	97	-15822	96	P	t-	0.4901	2.0069	0.9112	358.1	203.6	-	12N	32W

0721 Mar 18	14:44:10	3600	97	-15817	63	N	-a	1.4825	0.1341	-0.8586	101.5	-	-	1N	157E
0721 Apr 16	23:54:46	3600	97	-15816	101	N	a-	-1.1269	0.7713	-0.1909	222.4	-	-	12S	15E
0721 Oct 10	05:25:04	3595	96	-15810	106	N	a-	1.1633	0.7486	-0.3013	239.7	-	-	9N	70W
0722 Mar 07	23:38:20	3592	96	-15805	73	P	-t	0.8127	1.3931	0.3411	308.5	133.0	-	4N	24E
0722 Aug 31	05:40:25	3588	96	-15799	78	P	-a	-0.8461	1.2866	0.3241	269.8	119.6	-	9S	70W
0723 Feb 25	01:23:57	3583	96	-15793	83	T+	pp	0.1016	2.7171	1.6267	376.3	234.2	102.8	8N	2W
0723 Aug 20	22:18:50	3579	96	-15787	88	T-	-p	-0.1318	2.5922	1.6395	317.8	210.0	95.4	12S	41E
0724 Feb 14	01:17:53	3575	96	-15781	93	P	t-	-0.6053	1.7873	0.7082	342.2	184.1	-	12N	1W
0724 Aug 09	13:28:07	3571	96	-15775	98	P	a-	0.6129	1.7261	0.7407	306.7	174.3	-	14S	173E
0725 Jan 03	17:38:37	3567	96	-15770	65	N	-a	1.5002	0.1081	-0.8973	91.1	-	-	24N	113E
0725 Feb 02	06:29:46	3566	96	-15769	103	N	a-	-1.2732	0.5365	-0.4927	201.9	-	-	15N	79W
0725 Jun 30	09:30:36	3563	96	-15764	70	N	-t	-1.3626	0.3860	-0.6698	184.0	-	-	24S	127W
0725 Jul 29	22:52:49	3562	96	-15763	108	N	t-	1.4220	0.2681	-0.7699	151.0	-	-	17S	32E
0725 Dec 24	07:58:33	3559	96	-15758	75	P	-a	0.7960	1.3835	0.4111	274.8	131.8	-	24N	104W
0726 Jun 19	10:21:41	3554	96	-15752	80	P	-t	-0.6215	1.7517	0.6840	343.8	184.2	-	24S	141W
0726 Dec 13	23:30:52	3550	96	-15746	85	T+	-p	0.1376	2.5974	1.6133	323.7	210.8	94.4	24N	22E
0727 Jun 08	13:08:20	3546	95	-15740	90	T+	pp	0.1599	2.5809	1.5484	355.8	226.3	98.2	23S	177E
0727 Dec 03	11:36:45	3542	95	-15734	95	P	a-	-0.5658	1.8368	0.8031	322.9	183.1	-	22N	161W
0728 May 27	22:51:43	3537	95	-15728	100	P	a-	0.9122	1.1732	0.1949	269.6	97.3	-	21S	31E
0728 Nov 21	16:44:08	3533	95	-15722	105	N	t-	-1.3043	0.5090	-0.5785	209.8	-	-	20N	121E
0729 Apr 18	07:28:35	3530	95	-15717	72	P	-a	-0.9032	1.1734	0.2275	257.5	100.7	-	13S	98W
0729 Oct 11	21:49:46	3525	95	-15711	77	Nx	-t	1.0260	1.0182	-0.0665	283.3	-	-	9N	44E
0730 Apr 07	23:26:30	3521	95	-15705	82	T-	-p	-0.1904	2.4967	1.5204	327.2	212.8	92.3	8S	23E
0730 Oct 01	02:25:00	3517	95	-15699	87	T	-p	0.2771	2.3649	1.3343	343.2	214.9	81.6	5N	24W
0731 Mar 28	10:09:46	3513	95	-15693	92	P	t-	0.5779	1.8145	0.7810	329.1	185.4	-	4S	137W
0731 Sep 20	14:19:12	3508	95	-15687	97	T	a-	-0.4454	2.0285	1.0527	312.2	192.6	34.1	0S	158E
0732 Mar 16	13:31:53	3504	95	-15681	102	N	t-	1.3498	0.4216	-0.6583	194.5	-	-	1N	174E
0732 Aug 10	22:15:28	3501	95	-15676	69	N	-a	1.4353	0.2026	-0.7540	119.3	-	-	13S	41E
0732 Sep 09	06:24:52	3500	95	-15675	107	N	a-	-1.1258	0.7698	-0.1855	218.1	-	-	5S	82W
0733 Feb 03	20:55:14	3497	95	-15670	74	P	-t	-0.8903	1.2592	0.1903	301.1	102.3	-	14N	65E
0733 Jul 31	12:15:34	3492	94	-15664	79	P	-a	0.7535	1.4747	0.4762	297.8	147.9	-	17S	168W
0734 Jan 24	04:07:44	3488	94	-15658	84	T-	pp	-0.1455	2.5984	1.5836	338.2	217.1	95.7	18N	44W
0734 Jul 20	19:41:33	3484	94	-15652	89	T+	pp	0.0005	2.8822	1.8323	364.4	231.7	105.3	20S	80E
0735 Jan 13	17:38:19	3480	94	-15646	94	P	a-	0.5410	1.8524	0.8782	301.7	179.4	-	21N	113E
0735 Jul 09	21:03:23	3475	94	-15640	99	P	t-	-0.7676	1.4855	0.4141	327.8	150.0	-	23S	59E
0735 Dec 04	22:07:35	3472	94	-15635	66	N	-a	-1.5049	0.0945	-0.9010	84.2	-	-	21N	42E
0736 Jan 03	09:25:00	3471	94	-15634	104	N	a-	1.2005	0.6430	-0.3327	203.9	-	-	24N	125W
0736 May 29	10:42:26	3468	94	-15629	71	N	-t	1.2382	0.5949	-0.4226	214.0	-	-	21S	147W
0736 Jun 27	22:44:38	3467	94	-15628	109	N	t-	-1.4923	0.1420	-0.9021	112.6	-	-	25S	33E
0736 Nov 23	08:30:53	3464	94	-15623	76	P	-a	-0.8860	1.2576	0.2073	292.2	103.9	-	21N	116W

0737	May 18	22:20:41	3459	94	-15617	81	T	-a	0.4249	2.0610	1.0954	315.0	196.6	45.8	20S	38E
0737	Nov 12	11:36:44	3455	94	-15611	86	T-	-p	-0.2129	2.5161	1.4193	372.1	228.3	91.7	19N	163W
0738	May 08	14:45:54	3451	94	-15605	91	T	p-	-0.3215	2.2389	1.2967	310.2	200.9	74.2	18S	151E
0738	Nov 01	10:43:41	3447	94	-15599	96	P	t-	0.4717	2.0414	0.9445	359.3	205.8	-	16N	150W
0739	Mar 29	22:27:15	3443	93	-15594	63	Ne	-a	1.5358	0.0364	-0.9565	53.5	-	-	3S	39E
0739	Apr 28	07:27:59	3443	93	-15593	101	N	a-	-1.0663	0.8825	-0.0800	235.7	-	-	16S	99W
0739	Oct 21	13:28:39	3438	93	-15587	106	N	a-	1.1396	0.7920	-0.2575	244.7	-	-	13N	168E
0740	Mar 18	07:05:06	3435	93	-15582	73	P	-t	0.8616	1.3031	0.2514	302.3	116.1	-	0N	90W
0740	Sep 10	13:43:04	3431	93	-15576	78	P	-a	-0.8866	1.2128	0.2491	263.7	105.8	-	4S	168E
0741	Mar 07	08:41:37	3426	93	-15570	83	T+	pp	0.1451	2.6360	1.5483	375.4	233.1	100.0	4N	113W
0741	Aug 31	06:15:15	3422	93	-15564	88	T-	-p	-0.1809	2.5040	1.5477	317.4	208.5	91.8	8S	80W
0742	Feb 24	08:51:48	3418	93	-15558	93	P	t-	-0.5699	1.8494	0.7758	344.1	190.1	-	8N	115W
0742	Aug 20	21:02:02	3414	93	-15552	98	P	a-	0.5581	1.8295	0.8383	313.1	182.8	-	11S	59E
0743	Jan 15	02:13:29	3410	93	-15547	65	N	-a	1.5040	0.0988	-0.9022	86.9	-	-	22N	15W
0743	Feb 13	14:35:53	3410	93	-15546	103	N	a-	-1.2467	0.5823	-0.4409	208.4	-	-	11N	159E
0743	Jul 11	16:04:49	3406	93	-15541	70	N	-t	-1.4449	0.2368	-0.8227	146.6	-	-	23S	134E
0743	Aug 10	05:54:06	3406	93	-15540	108	N	t-	1.3610	0.3829	-0.6608	179.4	-	-	14S	74W
0744	Jan 04	16:47:47	3402	93	-15535	75	P	-a	0.8009	1.3736	0.4030	273.9	130.6	-	23N	125E
0744	Jun 29	16:46:06	3398	93	-15529	80	P	-t	-0.7073	1.5944	0.5268	334.1	165.8	-	24S	123E
0744	Dec 24	08:19:58	3394	92	-15523	85	T+	-p	0.1405	2.5929	1.6075	324.3	211.0	94.4	24N	110W
0745	Jun 18	19:51:28	3390	92	-15517	90	T+	pp	0.0763	2.7328	1.7035	355.8	227.9	103.1	24S	76E
0745	Dec 13	20:09:36	3385	92	-15511	95	P	a-	-0.5657	1.8385	0.8018	324.1	183.5	-	23N	71E
0746	Jun 08	06:02:15	3381	92	-15505	100	P	a-	0.8330	1.3168	0.3420	280.0	125.8	-	22S	77W
0746	Dec 03	00:53:34	3377	92	-15499	105	N	t-	-1.3018	0.5149	-0.5754	211.5	-	-	22N	1W
0747	Apr 29	15:06:25	3374	92	-15494	72	P	-a	-0.9676	1.0547	0.1102	247.4	71.3	-	16S	146E
0747	May 28	21:51:41	3373	92	-15493	110	Nb	a-	1.5243	0.0319	-0.9102	47.6	-	-	20S	45E
0747	Oct 23	05:38:43	3369	92	-15488	77	N	-t	1.0447	0.9843	-0.1012	279.1	-	-	14N	75W
0748	Apr 18	07:00:51	3365	92	-15482	82	T-	-p	-0.2509	2.3858	1.4091	326.4	210.5	85.7	12S	92W
0748	Oct 11	10:28:43	3361	92	-15476	87	T	-p	0.3009	2.3212	1.2909	341.1	212.7	77.1	9N	147W
0749	Apr 07	17:26:44	3357	92	-15470	92	P	t-	0.5221	1.9171	0.8832	334.9	194.3	-	8S	113E
0749	Sep 30	22:34:27	3353	92	-15464	97	T	a-	-0.4149	2.0850	1.1084	313.5	195.2	48.0	4N	33E
0750	Mar 27	20:34:05	3349	92	-15458	102	N	t-	1.2967	0.5181	-0.5598	213.8	-	-	3S	67E
0750	Aug 22	06:01:54	3345	91	-15453	69	N	-a	1.4900	0.1045	-0.8565	86.7	-	-	9S	77W
0750	Sep 20	14:36:30	3345	91	-15452	107	N	a-	-1.0905	0.8362	-0.1225	226.0	-	-	1S	153E
0751	Feb 15	04:43:50	3341	91	-15447	74	P	-t	-0.9135	1.2137	0.1506	295.9	91.3	-	11N	53W
0751	Aug 11	19:37:01	3337	91	-15441	79	P	-a	0.8175	1.3602	0.3558	291.2	130.7	-	14S	80E
0752	Feb 04	12:27:21	3333	91	-15435	84	T-	pp	-0.1618	2.5657	1.5564	336.3	216.1	94.5	15N	169W
0752	Jul 31	02:29:43	3329	91	-15429	89	T+	pp	0.0740	2.7499	1.6950	365.5	231.5	103.9	18S	23W
0753	Jan 24	02:19:13	3325	91	-15423	94	P	a-	0.5295	1.8720	0.9008	301.9	180.8	-	19N	17W
0753	Jul 20	03:32:29	3320	91	-15417	99	P	t-	-0.6859	1.6363	0.5634	338.0	170.8	-	21S	38W

0753	Dec 15	06:53:13	3317	91	-15412	66	N	-a	-1.5107	0.0851	-0.9128	80.1	-	-	22N	89W
0754	Jan 13	18:10:31	3316	91	-15411	104	N	a-	1.1953	0.6525	-0.3230	205.4	-	-	22N	105E
0754	Jun 09	17:34:23	3313	91	-15406	71	N	-t	1.3124	0.4569	-0.5568	189.2	-	-	22S	110E
0754	Jul 09	05:26:15	3312	91	-15405	109	N	t-	-1.4103	0.2917	-0.7507	158.6	-	-	24S	67W
0754	Dec 04	16:55:24	3309	91	-15400	76	P	-a	-0.8924	1.2478	0.1938	292.5	100.9	-	22N	119E
0755	May 30	05:38:52	3305	91	-15394	81	P	-a	0.4984	1.9244	0.9622	309.0	188.4	-	22S	72W
0755	Nov 23	19:38:13	3300	91	-15388	86	T-	-p	-0.2221	2.5007	1.4012	372.6	228.0	90.4	21N	77E
0756	May 18	22:17:13	3296	90	-15382	91	T-	p-	-0.2505	2.3686	1.4277	312.8	205.2	85.1	21S	38E
0756	Nov 11	18:39:58	3292	90	-15376	96	P	t-	0.4578	2.0672	0.9698	359.9	207.3	-	19N	90E
0757	May 08	14:55:08	3288	90	-15370	101	P	a-	-1.0015	1.0019	0.0386	248.7	43.5	-	19S	148E
0757	Oct 31	21:41:04	3284	90	-15364	106	N	a-	1.1223	0.8234	-0.2254	247.9	-	-	17N	44E
0758	Mar 29	14:19:42	3281	90	-15359	73	P	-t	0.9194	1.1969	0.1455	293.9	89.9	-	4S	160E
0758	Sep 21	21:54:37	3276	90	-15353	78	P	-a	-0.9202	1.1519	0.1868	258.5	92.3	-	0S	43E
0759	Mar 18	15:48:26	3272	90	-15347	83	T+	pp	0.1970	2.5392	1.4546	373.8	231.1	95.0	0S	138E
0759	Sep 11	14:19:12	3268	90	-15341	88	T-	-p	-0.2233	2.4282	1.4678	317.0	206.8	87.6	4S	158E
0760	Mar 06	16:18:17	3264	90	-15335	93	P	t-	-0.5278	1.9237	0.8559	346.3	196.5	-	4N	132E
0760	Aug 31	04:42:17	3260	90	-15329	98	P	a-	0.5095	1.9217	0.9244	318.5	189.6	-	7S	58W
0761	Jan 25	10:45:19	3257	90	-15324	65	N	-a	1.5110	0.0837	-0.9127	79.8	-	-	19N	143W
0761	Feb 23	22:36:55	3256	90	-15323	103	N	a-	-1.2152	0.6368	-0.3802	215.8	-	-	7N	37E
0761	Jul 21	22:40:08	3253	90	-15318	70	Ne	-t	-1.5251	0.0916	-0.9718	92.6	-	-	21S	35E
0761	Aug 20	12:58:50	3252	90	-15317	108	N	t-	1.3032	0.4919	-0.5579	202.1	-	-	10S	179E
0762	Jan 15	01:35:04	3248	90	-15312	75	P	-a	0.8077	1.3602	0.3916	272.7	128.9	-	21N	7W
0762	Jul 10	23:13:03	3244	89	-15306	80	P	-t	-0.7910	1.4408	0.3729	323.0	142.7	-	23S	26E
0763	Jan 04	17:06:17	3240	89	-15300	85	T+	-p	0.1450	2.5850	1.5988	324.9	211.3	94.2	23N	119E
0763	Jun 30	02:38:33	3236	89	-15294	90	T-	pp	-0.0051	2.8622	1.8354	354.7	227.9	104.3	23S	26W
0763	Dec 25	04:40:09	3232	89	-15288	95	P	a-	-0.5644	1.8422	0.8029	325.5	184.1	-	23N	55W
0764	Jun 18	13:15:48	3228	89	-15282	100	P	a-	0.7556	1.4573	0.4854	288.7	146.2	-	23S	174E
0764	Dec 13	09:01:29	3224	89	-15276	105	N	t-	-1.2986	0.5219	-0.5705	213.3	-	-	22N	122W
0765	May 09	22:41:01	3220	89	-15271	72	N	-a	-1.0343	0.9317	-0.0119	235.8	-	-	19S	32E
0765	Jun 08	05:18:37	3220	89	-15270	110	N	a-	1.4529	0.1625	-0.7785	106.1	-	-	22S	67W
0765	Nov 02	13:34:35	3216	89	-15265	77	N	-t	1.0583	0.9595	-0.1262	275.7	-	-	17N	166E
0766	Apr 29	14:26:43	3212	89	-15259	82	T	-a	-0.3177	2.2637	1.2861	324.8	207.0	75.1	16S	155E
0766	Oct 22	18:41:31	3208	89	-15253	87	T	-p	0.3178	2.2898	1.2601	339.2	210.8	73.4	13N	89E
0767	Apr 19	00:33:02	3204	89	-15247	92	T	t-	0.4582	2.0347	1.0001	340.9	203.0	1.6	12S	5E
0767	Oct 12	06:58:30	3200	89	-15241	97	T	a-	-0.3913	2.1286	1.1513	314.3	196.9	55.9	8N	95W
0768	Apr 07	03:26:05	3196	88	-15235	102	N	t-	1.2354	0.6295	-0.4465	233.3	-	-	7S	38W
0768	Sep 01	13:56:24	3193	88	-15230	69	Ne	-a	1.5377	0.0192	-0.9464	37.6	-	-	5S	163E
0768	Sep 30	22:56:53	3192	88	-15229	107	N	a-	-1.0626	0.8891	-0.0729	232.1	-	-	4N	27E
0769	Feb 25	12:24:34	3189	88	-15224	74	P	-t	-0.9436	1.1554	0.0984	289.3	74.1	-	7N	170W
0769	Aug 22	03:02:55	3184	88	-15218	79	P	-a	0.8767	1.2547	0.2441	284.4	110.4	-	10S	33W

0770	Feb 14	20:40:49	3180	88	-15212	84	T-	-p	-0.1838	2.5224	1.5189	334.3	214.8	92.6	11N	67E
0770	Aug 11	09:21:57	3176	88	-15206	89	T+	pp	0.1431	2.6258	1.5656	365.9	230.1	99.9	14S	127W
0771	Feb 04	10:53:43	3172	88	-15200	94	P	a-	0.5128	1.9008	0.9331	302.5	182.8	-	16N	146W
0771	Jul 31	10:07:19	3168	88	-15194	99	P	t-	-0.6086	1.7791	0.7042	346.4	186.4	-	18S	138W
0771	Dec 26	15:38:08	3165	88	-15189	66	N	-a	-1.5164	0.0755	-0.9241	75.8	-	-	22N	140E
0772	Jan 25	02:51:20	3164	88	-15188	104	N	a-	1.1871	0.6672	-0.3077	207.7	-	-	19N	26W
0772	Jun 20	00:28:15	3161	88	-15183	71	N	-t	1.3856	0.3209	-0.6895	159.9	-	-	22S	6E
0772	Jul 19	12:13:15	3160	88	-15182	109	N	t-	-1.3312	0.4361	-0.6050	190.7	-	-	22S	169W
0772	Dec 15	01:20:06	3157	88	-15177	76	P	-a	-0.8977	1.2395	0.1825	292.8	98.4	-	23N	7W
0773	Jun 09	12:57:12	3153	88	-15171	81	P	-a	0.5723	1.7875	0.8281	302.2	178.5	-	23S	178E
0773	Dec 04	03:42:21	3149	88	-15165	86	T-	-p	-0.2287	2.4895	1.3881	373.1	227.9	89.4	23N	44W
0774	May 30	05:44:50	3145	87	-15159	91	T-	p-	-0.1765	2.5040	1.5638	314.9	208.5	92.6	22S	74W
0774	Nov 23	02:42:01	3141	87	-15153	96	P	t-	0.4482	2.0846	0.9873	360.0	208.1	-	22N	30W
0775	May 19	22:17:30	3137	87	-15147	101	P	a-	-0.9334	1.1275	0.1629	261.0	88.1	-	21S	37E
0775	Nov 12	05:59:05	3133	87	-15141	106	N	a-	1.1089	0.8472	-0.2003	250.1	-	-	20N	80W
0776	Apr 08	21:25:53	3129	87	-15136	73	P	-t	0.9830	1.0803	0.0288	283.5	40.8	-	8S	52E
0776	Oct 02	06:14:11	3125	87	-15130	78	P	-a	-0.9474	1.1029	0.1363	254.0	79.3	-	4N	83W
0777	Mar 28	22:47:07	3121	87	-15124	83	T+	pp	0.2555	2.4303	1.3487	371.5	228.0	87.0	4S	32E
0777	Sep 21	22:29:39	3117	87	-15118	88	T-	-p	-0.2600	2.3630	1.3984	316.6	205.1	83.0	1N	34E
0778	Mar 17	23:36:41	3113	87	-15112	93	P	t-	-0.4783	2.0115	0.9496	348.7	203.0	-	1S	20E
0778	Sep 11	12:29:21	3109	87	-15106	98	P	a-	0.4671	2.0026	0.9992	323.2	195.0	-	3S	176W
0779	Feb 05	19:09:24	3106	87	-15101	65	N	-a	1.5248	0.0558	-0.9355	65.1	-	-	16N	90E
0779	Mar 07	06:28:32	3105	87	-15100	103	N	a-	-1.1751	0.7071	-0.3035	224.8	-	-	3N	82W
0779	Aug 31	20:11:54	3101	87	-15094	108	N	t-	1.2524	0.5881	-0.4677	219.9	-	-	6S	69E
0780	Jan 26	10:16:08	3098	87	-15089	75	P	-a	0.8200	1.3364	0.3701	270.9	125.7	-	19N	137W
0780	Jul 21	05:45:32	3094	86	-15083	80	P	-t	-0.8703	1.2956	0.2272	311.1	113.7	-	21S	72W
0781	Jan 15	01:47:48	3090	86	-15077	85	T+	-p	0.1532	2.5700	1.5834	325.5	211.4	93.8	21N	11W
0781	Jul 10	09:29:41	3086	86	-15071	90	T-	pp	-0.0841	2.7161	1.6914	352.8	226.4	102.4	22S	129W
0782	Jan 04	13:07:42	3082	86	-15065	95	P	a-	-0.5614	1.8486	0.8075	326.9	185.0	-	22N	178E
0782	Jun 29	20:29:55	3078	86	-15059	100	P	a-	0.6777	1.5991	0.6295	296.2	162.3	-	23S	66E
0782	Dec 24	17:09:30	3074	86	-15053	105	N	t-	-1.2958	0.5278	-0.5659	214.8	-	-	22N	116E
0783	May 21	06:10:22	3070	86	-15048	72	N	-a	-1.1054	0.8012	-0.1420	221.8	-	-	22S	81W
0783	Jun 19	12:44:44	3070	86	-15047	110	N	a-	1.3804	0.2952	-0.6454	141.1	-	-	22S	179W
0783	Nov 13	21:37:28	3066	86	-15042	77	N	-t	1.0667	0.9439	-0.1415	273.3	-	-	20N	45E
0784	May 09	21:47:01	3062	86	-15036	82	T	-a	-0.3885	2.1346	1.1556	322.4	202.0	58.0	19S	45E
0784	Nov 02	03:02:21	3058	86	-15030	87	T	-p	0.3292	2.2686	1.2397	337.6	209.4	70.8	16N	37W
0785	Apr 29	07:32:07	3054	86	-15024	92	T	t-	0.3892	2.1617	1.1262	346.5	210.9	55.1	15S	101W
0785	Oct 22	15:29:42	3050	86	-15018	97	T	p-	-0.3733	2.1620	1.1840	314.7	198.0	60.9	12N	137E
0786	Apr 18	10:10:46	3046	85	-15012	102	N	t-	1.1682	0.7520	-0.3221	252.0	-	-	11S	140W
0786	Oct 12	07:24:02	3042	85	-15006	107	N	a-	-1.0407	0.9309	-0.0344	236.7	-	-	8N	101W

0787 Mar 08	19:58:04	3039	85	-15001	74	P	-t	-0.9799	1.0856	0.0348	281.3	44.4	-	2N	76E
0787 Sep 02	10:36:03	3035	85	-14995	79	P	-a	0.9288	1.1624	0.1455	277.9	86.7	-	6S	147W
0788 Feb 26	04:48:08	3031	85	-14989	84	T-	-p	-0.2113	2.4690	1.4713	332.0	213.2	89.9	7N	56W
0788 Aug 21	16:20:37	3027	85	-14983	89	T+	pp	0.2061	2.5129	1.4474	365.7	227.9	93.6	11S	128E
0789 Feb 14	19:21:53	3023	85	-14977	94	P	a-	0.4907	1.9395	0.9753	303.4	185.4	-	12N	86E
0789 Aug 10	16:49:29	3019	85	-14971	99	P	t-	-0.5371	1.9113	0.8343	353.1	198.3	-	15S	121E
0790 Jan 06	00:19:01	3016	85	-14966	66	N	-a	-1.5251	0.0603	-0.9407	68.0	-	-	21N	10E
0790 Feb 04	11:24:41	3015	85	-14965	104	N	a-	1.1733	0.6921	-0.2820	211.3	-	-	16N	154W
0790 Jul 01	07:25:10	3012	85	-14960	71	N	-t	1.4568	0.1888	-0.8189	123.6	-	-	22S	98W
0790 Jul 30	19:07:26	3011	85	-14959	109	N	t-	-1.2567	0.5724	-0.4678	215.0	-	-	19S	87E
0790 Dec 26	09:42:13	3008	85	-14954	76	P	-a	-0.9044	1.2285	0.1693	292.9	95.2	-	22N	132W
0791 Jun 20	20:16:55	3004	85	-14948	81	P	-a	0.6454	1.6521	0.6949	294.6	166.8	-	23S	68E
0791 Dec 15	11:45:27	3000	85	-14942	86	T-	-p	-0.2356	2.4774	1.3748	373.4	227.7	88.4	23N	164W
0792 Jun 09	13:11:54	2996	84	-14936	91	T-	pp	-0.1021	2.6405	1.7003	316.4	210.6	97.3	23S	174E
0792 Dec 03	10:47:33	2992	84	-14930	96	T	t-	0.4415	2.0966	1.0002	359.8	208.7	2.3	23N	151W
0793 May 30	05:34:38	2988	84	-14924	101	P	a-	-0.8616	1.2602	0.2936	272.8	116.4	-	23S	73W
0793 Nov 22	14:23:32	2984	84	-14918	106	N	a-	1.1002	0.8625	-0.1833	251.1	-	-	22N	154E
0794 Apr 20	04:21:37	2981	84	-14913	73	N	-t	1.0539	0.9503	-0.1012	270.3	-	-	12S	53W
0794 Oct 13	14:42:19	2977	84	-14907	78	P	-a	-0.9682	1.0655	0.0973	250.4	67.3	-	8N	149E
0795 Apr 09	05:35:44	2973	84	-14901	83	T	-t	0.3223	2.3063	1.2277	368.2	223.3	73.5	8S	71W
0795 Oct 03	06:48:32	2969	84	-14895	88	T	-p	-0.2895	2.3111	1.3423	316.3	203.5	78.5	5N	93W
0796 Mar 28	06:48:39	2965	84	-14889	93	T	t-	-0.4226	2.1109	1.0549	350.9	209.3	37.5	5S	89W
0796 Sep 21	20:22:26	2961	84	-14883	98	T	p-	0.4305	2.0731	1.0633	327.2	199.3	38.3	1N	64E
0797 Feb 16	03:28:58	2958	84	-14878	65	Ne	-a	1.5430	0.0199	-0.9662	38.9	-	-	12N	35W
0797 Mar 17	14:15:13	2957	84	-14877	103	N	a-	-1.1302	0.7865	-0.2178	234.1	-	-	1S	160E
0797 Sep 11	03:30:40	2953	84	-14871	108	N	t-	1.2066	0.6753	-0.3866	234.6	-	-	2S	42W
0798 Feb 05	18:51:54	2950	84	-14866	75	P	-a	0.8367	1.3044	0.3407	268.4	121.1	-	15N	94E
0798 Aug 01	12:23:34	2946	83	-14860	80	P	-t	-0.9452	1.1587	0.0894	298.3	72.6	-	18S	172W
0799 Jan 26	10:23:58	2942	83	-14854	85	T+	-p	0.1655	2.5476	1.5609	325.9	211.5	93.1	18N	140W
0799 Jul 21	16:27:45	2938	83	-14848	90	T-	pp	-0.1583	2.5791	1.5561	350.2	223.7	97.5	20S	126E
0800 Jan 15	21:29:01	2934	83	-14842	95	P	a-	-0.5540	1.8629	0.8203	328.7	186.6	-	20N	53E
0800 Jul 10	03:49:58	2930	83	-14836	100	P	a-	0.6039	1.7338	0.7659	302.3	174.6	-	21S	45W

9TH CENTURY CE

**In the 9th century CE the total number of lunar eclipses was 228 lunar eclipses:
79 penumbral lunar eclipses, 60 partial lunar eclipses, 89 total lunar eclipses
(24 central total lunar eclipses, 65 non-central total lunar eclipses).**

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
ECLIPSE															
0801 Jan 04	01:13:15	2926	83	-14830	105	N	t-	-1.2897	0.5392	-0.5551	217.2	-	-	21N	4W
0801 May 31	13:37:17	2923	83	-14825	72	N	-a	-1.1781	0.6679	-0.2756	205.5	-	-	24S	167E
0801 Jun 29	20:12:15	2922	83	-14824	110	N	a-	1.3089	0.4266	-0.5142	167.5	-	-	22S	69E
0801 Nov 24	05:44:58	2919	83	-14819	77	N	-t	1.0719	0.9337	-0.1507	271.5	-	-	22N	77W
0802 May 21	05:01:23	2915	83	-14813	82	T	-a	-0.4635	1.9979	1.0169	319.0	195.1	20.0	21S	65W
0802 Nov 13	11:29:22	2911	83	-14807	87	T	-p	0.3360	2.2553	1.2279	336.1	208.3	69.1	19N	164W
0803 May 10	14:22:42	2907	83	-14801	92	T	pp	0.3140	2.3005	1.2635	351.7	218.0	76.2	18S	155E
0803 Nov 03	00:08:13	2904	83	-14795	97	T	p-	-0.3609	2.1848	1.2065	314.8	198.7	63.9	16N	6E
0804 Apr 28	16:47:37	2900	83	-14789	102	N	t-	1.0945	0.8863	-0.1862	270.0	-	-	15S	119E
0804 Oct 22	15:57:58	2896	82	-14783	107	N	a-	-1.0246	0.9621	-0.0064	240.2	-	-	12N	129E
0805 Mar 19	03:23:55	2893	82	-14778	74	Nx	-t	-1.0232	1.0031	-0.0413	271.5	-	-	2S	37W
0805 Sep 12	18:15:34	2889	82	-14772	79	P	-a	0.9746	1.0816	0.0581	271.7	55.7	-	2S	96E
0806 Mar 08	12:46:45	2885	82	-14766	84	T-	-p	-0.2469	2.4007	1.4090	329.3	211.1	85.7	3N	177W
0806 Sep 01	23:25:56	2881	82	-14760	89	T+	-p	0.2630	2.4113	1.3403	365.1	224.9	85.3	7S	20E
0807 Feb 26	03:42:32	2877	82	-14754	94	T	a-	0.4622	1.9900	1.0294	304.8	188.5	25.4	8N	40W
0807 Aug 21	23:39:38	2873	82	-14748	99	P	t-	-0.4716	2.0327	0.9534	358.3	207.2	-	11S	17E
0808 Jan 17	08:55:26	2870	82	-14743	66	N	-a	-1.5369	0.0390	-0.9629	54.9	-	-	19N	119W
0808 Feb 15	19:51:03	2869	82	-14742	104	N	a-	1.1544	0.7263	-0.2468	216.1	-	-	12N	78E
0808 Jul 11	14:26:59	2866	82	-14737	71	Ne	-t	1.5248	0.0630	-0.9424	72.0	-	-	20S	156E
0808 Aug 10	02:09:38	2865	82	-14736	109	N	t-	-1.1874	0.6993	-0.3403	234.0	-	-	16S	19W
0809 Jan 05	18:01:50	2862	82	-14731	76	P	-a	-0.9123	1.2148	0.1539	292.6	91.2	-	21N	104E
0809 Jul 01	03:37:50	2858	82	-14725	81	P	-a	0.7181	1.5180	0.5624	286.3	152.9	-	22S	42W
0809 Dec 25	19:48:40	2854	82	-14719	86	T-	-p	-0.2422	2.4656	1.3626	373.6	227.5	87.5	23N	76E
0810 Jun 20	20:38:17	2851	82	-14713	91	T-	pp	-0.0274	2.7777	1.8370	317.2	211.7	99.4	24S	62E
0810 Dec 14	18:54:21	2847	81	-14707	96	T	t-	0.4351	2.1073	1.0127	359.5	209.2	18.4	24N	88E
0811 Jun 10	12:50:01	2843	81	-14701	101	P	a-	-0.7889	1.3949	0.4257	283.6	137.8	-	24S	179E
0811 Dec 03	22:50:52	2839	81	-14695	106	N	a-	1.0933	0.8740	-0.1695	251.6	-	-	24N	27E
0812 Apr 30	11:11:16	2836	81	-14690	73	N	-t	1.1289	0.8129	-0.2391	254.3	-	-	15S	157W

0812 Oct 23	23:16:12	2832	81	-14684	78	P	-a	-0.9846	1.0360	0.0666	247.5	55.8	-	12N	19E
0813 Apr 19	12:18:11	2828	81	-14678	83	T	-t	0.3940	2.1733	1.0976	363.8	216.7	50.3	12S	173W
0813 Oct 13	15:13:53	2824	81	-14672	88	T	-p	-0.3132	2.2696	1.2966	316.1	202.1	74.3	9N	140E
0814 Apr 08	13:52:08	2820	81	-14666	93	T	t-	-0.3591	2.2245	1.1743	353.1	215.2	64.1	9S	164E
0814 Oct 03	04:23:22	2816	81	-14660	98	T	p-	0.4010	2.1302	1.1143	330.6	202.6	50.8	6N	57W
0815 Mar 28	21:53:22	2813	81	-14654	103	N	a-	-1.0775	0.8799	-0.1181	244.2	-	-	5S	44E
0815 Sep 22	10:58:14	2809	81	-14648	108	N	t-	1.1684	0.7484	-0.3194	246.1	-	-	2N	156W
0816 Feb 17	03:19:18	2806	81	-14643	75	P	-a	0.8605	1.2594	0.2984	264.9	114.0	-	12N	34W
0816 Aug 11	19:10:35	2802	81	-14637	80	Nx	-t	-1.0130	1.0349	-0.0355	285.3	-	-	15S	85E
0817 Feb 05	18:53:10	2798	80	-14631	85	T+	-p	0.1831	2.5151	1.5286	326.2	211.3	91.8	15N	93E
0817 Jul 31	23:31:36	2794	80	-14625	90	T-	pp	-0.2287	2.4493	1.4276	346.9	219.9	89.9	18S	20E
0818 Jan 26	05:44:55	2790	80	-14619	95	P	a-	-0.5429	1.8838	0.8404	330.7	188.8	-	17N	71W
0818 Jul 21	11:13:53	2786	80	-14613	100	P	a-	0.5322	1.8648	0.8978	307.3	184.3	-	19S	156W
0819 Jan 15	09:12:28	2783	80	-14607	105	N	t-	-1.2803	0.5563	-0.5378	220.6	-	-	19N	124W
0819 Jun 11	21:02:08	2779	80	-14602	72	N	-a	-1.2522	0.5324	-0.4121	186.3	-	-	25S	56E
0819 Jul 11	03:42:22	2779	80	-14601	110	N	a-	1.2392	0.5549	-0.3869	188.7	-	-	21S	44W
0819 Dec 05	13:57:07	2776	80	-14596	77	N	-t	1.0742	0.9287	-0.1540	270.2	-	-	24N	161E
0820 May 31	12:12:17	2772	80	-14590	82	P	-a	-0.5404	1.8580	0.8746	314.6	186.2	-	23S	173W
0820 Nov 23	20:01:16	2768	80	-14584	87	T	-p	0.3396	2.2479	1.2222	334.8	207.5	68.2	22N	69E
0821 May 20	21:08:29	2764	80	-14578	92	T+	pp	0.2355	2.4454	1.4067	356.1	223.7	90.0	21S	53E
0821 Nov 13	08:52:15	2760	80	-14572	97	T	p-	-0.3530	2.1994	1.2209	314.7	199.0	65.7	19N	125W
0822 May 09	23:17:57	2757	80	-14566	102	Nx	t-	1.0155	1.0306	-0.0406	286.9	-	-	18S	21E
0822 Nov 03	00:37:56	2753	80	-14560	107	P	a-	-1.0138	0.9833	0.0119	242.7	23.8	-	15N	1W
0823 Mar 30	10:43:14	2750	79	-14555	74	N	-t	-1.0722	0.9098	-0.1283	259.9	-	-	6S	149W
0823 Sep 24	02:02:05	2746	79	-14549	79	Nx	-a	1.0138	1.0130	-0.0169	266.2	-	-	3N	22W
0824 Mar 18	20:39:17	2742	79	-14543	84	T	-p	-0.2882	2.3220	1.3362	326.2	208.3	79.7	1S	63E
0824 Sep 12	06:39:30	2738	79	-14537	89	T	-p	0.3125	2.3231	1.2468	364.3	221.6	75.2	2S	90W
0825 Mar 08	11:55:46	2734	79	-14531	94	T	a-	0.4275	2.0518	1.0948	306.4	192.0	44.6	4N	165W
0825 Sep 01	06:38:08	2731	79	-14525	99	T	t-	-0.4127	2.1420	1.0604	362.4	213.9	39.9	7S	89W
0826 Jan 27	17:25:17	2727	79	-14520	66	Ne	-a	-1.5534	0.0091	-0.9934	26.6	-	-	16N	114E
0826 Feb 26	04:08:42	2727	79	-14519	104	N	a-	1.1291	0.7722	-0.2000	222.2	-	-	8N	47W
0826 Aug 21	09:21:35	2723	79	-14513	109	N	t-	-1.1252	0.8133	-0.2260	248.7	-	-	12S	129W
0827 Jan 17	02:14:12	2720	79	-14508	76	P	-a	-0.9250	1.1919	0.1300	291.5	84.4	-	19N	19W
0827 Jul 12	11:03:31	2716	79	-14502	81	P	-a	0.7870	1.3911	0.4363	277.6	137.0	-	21S	154W
0828 Jan 06	03:47:49	2712	79	-14496	86	T-	-p	-0.2512	2.4487	1.3462	373.5	227.1	86.1	22N	43W
0828 Jul 01	04:05:52	2708	79	-14490	91	T+	pp	0.0461	2.7442	1.8021	317.5	211.6	99.1	23S	50W
0828 Dec 25	03:01:07	2705	79	-14484	96	T	t-	0.4285	2.1182	1.0260	359.0	209.6	26.2	24N	33W
0829 Jun 20	20:03:06	2701	78	-14478	101	P	a-	-0.7153	1.5317	0.5593	293.5	155.2	-	24S	70E
0829 Dec 14	07:21:14	2697	78	-14472	106	N	a-	1.0880	0.8820	-0.1584	251.6	-	-	25N	99W
0830 May 11	17:51:15	2694	78	-14467	73	N	-t	1.2104	0.6637	-0.3891	233.8	-	-	18S	102E

0830 Jun 10	06:33:46	2693	78	-14466	111	Nb	t-	-1.5400	0.0456	-0.9807	63.0	-	-	25S	88W
0830 Nov 04	07:57:52	2690	78	-14461	78	P	-a	-0.9950	1.0174	0.0469	245.6	46.9	-	16N	112W
0831 Apr 30	18:53:07	2687	78	-14455	83	P	-t	0.4715	2.0296	0.9567	358.1	207.8	-	16S	87E
0831 Oct 24	23:45:57	2683	78	-14449	88	T	-p	-0.3310	2.2391	1.2621	316.2	201.0	70.7	13N	11E
0832 Apr 18	20:51:11	2679	78	-14443	93	T	t-	-0.2911	2.3462	1.3017	354.7	220.1	80.6	13S	58E
0832 Oct 13	12:31:00	2675	78	-14437	98	T	p-	0.3782	2.1751	1.1532	333.6	205.1	58.2	10N	180E
0833 Apr 08	05:26:31	2672	78	-14431	103	N	a-	-1.0198	0.9827	-0.0093	254.1	-	-	10S	71W
0833 Oct 02	18:32:08	2668	78	-14425	108	N	t-	1.1357	0.8113	-0.2623	255.6	-	-	6N	90E
0834 Feb 27	11:40:41	2665	78	-14420	75	P	-a	0.8894	1.2050	0.2467	260.6	104.5	-	8N	160W
0834 Aug 23	02:05:56	2661	78	-14414	80	N	-t	-1.0744	0.9228	-0.1488	272.2	-	-	11S	20W
0835 Feb 17	03:14:11	2657	78	-14408	85	T+	-p	0.2072	2.4708	1.4847	326.4	210.9	89.7	11N	34W
0835 Aug 12	06:45:07	2653	78	-14402	90	T	-p	-0.2921	2.3325	1.3116	343.2	215.3	80.0	14S	89W
0836 Feb 06	13:52:35	2650	77	-14396	95	P	h-	-0.5255	1.9160	0.8721	333.2	191.8	-	14N	167E
0836 Jul 31	18:44:29	2646	77	-14390	100	T	a-	0.4655	1.9869	1.0206	311.3	191.7	21.7	17S	91E
0837 Jan 25	17:04:48	2642	77	-14384	105	N	t-	-1.2656	0.5829	-0.5104	225.6	-	-	17N	118E
0837 Jun 22	04:27:05	2639	77	-14379	72	N	-a	-1.3260	0.3980	-0.5483	163.4	-	-	25S	56W
0837 Jul 21	11:16:23	2639	77	-14378	110	N	a-	1.1724	0.6781	-0.2651	206.1	-	-	19S	157W
0837 Dec 15	22:10:01	2635	77	-14373	77	N	-t	1.0763	0.9236	-0.1566	268.8	-	-	25N	39E
0838 Jun 11	19:18:53	2632	77	-14367	82	P	-a	-0.6199	1.7138	0.7272	309.1	174.7	-	24S	81E
0838 Dec 05	04:36:29	2628	77	-14361	87	T	-p	0.3412	2.2437	1.2204	333.5	206.8	67.8	23N	59W
0839 Jun 01	03:49:01	2624	77	-14355	92	T+	pp	0.1535	2.5970	1.5560	359.8	228.1	99.1	22S	47W
0839 Nov 24	17:39:48	2621	77	-14349	97	T	p-	-0.3477	2.2090	1.2309	314.5	199.1	66.9	21N	104E
0840 May 20	05:43:46	2617	77	-14343	102	P	t-	0.9324	1.1825	0.1124	302.4	81.7	-	20S	76W
0840 Nov 13	09:23:11	2613	77	-14337	107	P	a-	-1.0075	0.9963	0.0222	244.3	32.5	-	18N	133W
0841 Apr 09	17:55:12	2610	77	-14332	74	N	-t	-1.1279	0.8045	-0.2274	245.9	-	-	10S	102E
0841 Oct 04	09:55:38	2606	77	-14326	79	N	-a	1.0463	0.9565	-0.0798	261.4	-	-	7N	141W
0842 Mar 30	04:24:13	2603	76	-14320	84	T	-p	-0.3367	2.2302	1.2501	322.6	204.6	70.7	6S	55W
0842 Sep 23	14:01:17	2599	76	-14314	89	T	-t	0.3545	2.2487	1.1670	363.4	218.3	63.7	2N	158E
0843 Mar 19	20:00:43	2595	76	-14308	94	T	p-	0.3859	2.1264	1.1729	308.3	195.7	58.9	1S	72E
0843 Sep 12	13:47:00	2592	76	-14302	99	T	t-	-0.3618	2.2365	1.1525	365.3	218.8	61.5	3S	163E
0844 Mar 08	12:19:06	2588	76	-14296	104	N	a-	1.0986	0.8277	-0.1436	229.1	-	-	4N	171W
0844 Aug 31	16:41:48	2584	76	-14290	109	N	h-	-1.0685	0.9172	-0.1221	260.5	-	-	8S	120E
0845 Jan 27	10:21:34	2581	76	-14285	76	P	-h	-0.9412	1.1627	0.1001	289.6	74.6	-	16N	141W
0845 Jul 22	18:33:04	2577	76	-14279	81	P	-a	0.8531	1.2697	0.3153	268.4	118.3	-	19S	93E
0846 Jan 16	11:42:54	2574	76	-14273	86	T-	-p	-0.2637	2.4252	1.3238	373.1	226.5	84.1	20N	162W
0846 Jul 12	11:35:18	2570	76	-14267	91	T+	-p	0.1179	2.6135	1.6695	317.1	210.5	96.5	21S	162W
0847 Jan 05	11:06:07	2566	76	-14261	96	T	t-	0.4198	2.1325	1.0435	358.5	210.4	33.6	23N	153W
0847 Jul 02	03:17:25	2563	76	-14255	101	P	a-	-0.6430	1.6661	0.6899	302.3	169.3	-	24S	38W
0847 Dec 25	15:50:12	2559	76	-14249	106	N	a-	1.0810	0.8931	-0.1437	251.9	-	-	24N	134E
0848 May 22	00:28:14	2556	76	-14244	73	N	-t	1.2932	0.5123	-0.5416	209.0	-	-	20S	3E

0848 Jun 20	13:19:50	2555	76	-14243	111	N	t-	-1.4661	0.1830	-0.8469	125.2	-	-	25S	171E
0848 Nov 14	16:43:49	2552	75	-14238	78	P	-a	-1.0021	1.0048	0.0334	244.3	39.7	-	19N	117E
0849 May 11	01:23:05	2549	75	-14232	83	P	-t	0.5531	1.8786	0.8081	350.9	196.1	-	18S	11W
0849 Nov 04	08:23:35	2545	75	-14226	88	T	-p	-0.3438	2.2174	1.2367	316.5	200.3	67.9	17N	119W
0850 Apr 30	03:44:25	2541	75	-14220	93	T-	pp	-0.2176	2.4784	1.4392	355.8	224.1	92.1	16S	47W
0850 Oct 24	20:45:19	2538	75	-14214	98	T	p-	0.3613	2.2089	1.1814	336.1	207.0	62.9	14N	55E
0851 Apr 19	12:52:45	2534	75	-14208	103	P	a-	-0.9555	1.0980	0.1115	264.1	74.6	-	13S	176E
0851 Oct 14	02:15:20	2530	75	-14202	108	N	t-	1.1108	0.8596	-0.2194	262.8	-	-	10N	27W
0852 Mar 09	19:53:26	2527	75	-14197	75	P	-a	0.9258	1.1370	0.1813	255.0	90.5	-	3N	75E
0852 Sep 02	09:10:41	2524	75	-14191	80	N	-t	-1.1287	0.8239	-0.2491	259.4	-	-	7S	127W
0853 Feb 27	11:26:44	2520	75	-14185	85	T+	-p	0.2379	2.4143	1.4286	326.2	209.9	86.5	7N	158W
0853 Aug 22	14:06:44	2517	75	-14179	90	T	-p	-0.3499	2.2262	1.2059	339.3	210.3	67.2	11S	159E
0854 Feb 16	21:51:07	2513	75	-14173	95	P	t-	-0.5014	1.9603	0.9162	336.1	195.7	-	10N	46E
0854 Aug 12	02:21:26	2509	75	-14167	100	T	a-	0.4034	2.1009	1.1345	314.3	197.3	53.4	14S	24W
0855 Feb 06	00:50:05	2506	74	-14161	105	N	t-	-1.2455	0.6191	-0.4729	231.9	-	-	13N	2E
0855 Jul 03	11:52:29	2503	74	-14156	72	N	-a	-1.3988	0.2655	-0.6831	135.4	-	-	24S	167W
0855 Aug 01	18:54:54	2502	74	-14155	110	N	a-	1.1095	0.7947	-0.1507	220.6	-	-	16S	87E
0855 Dec 27	06:23:07	2499	74	-14150	77	N	-t	1.0789	0.9173	-0.1597	267.2	-	-	24N	84W
0856 Jun 22	02:24:57	2495	74	-14144	82	P	-a	-0.6989	1.5707	0.5804	302.5	160.3	-	24S	26W
0856 Dec 15	13:14:09	2492	74	-14138	87	T	-p	0.3416	2.2414	1.2210	332.2	206.3	67.8	24N	172E
0857 Jun 11	10:25:55	2488	74	-14132	92	T+	pp	0.0692	2.7530	1.7093	362.5	230.8	104.1	23S	147W
0857 Dec 05	02:30:42	2485	74	-14126	97	T	p-	-0.3448	2.2139	1.2365	314.1	199.1	67.5	23N	29W
0858 May 31	12:06:37	2481	74	-14120	102	P	t-	0.8464	1.3401	0.2706	316.4	123.9	-	22S	172W
0858 Nov 24	18:11:25	2477	74	-14114	107	P	a-	-1.0040	1.0039	0.0276	245.4	36.2	-	21N	95E
0859 Apr 21	01:02:26	2474	74	-14109	74	N	-t	-1.1880	0.6913	-0.3347	229.5	-	-	14S	6W
0859 May 20	13:37:58	2474	74	-14108	112	Nb	t-	1.5702	0.0006	-1.0462	7.5	-	-	19S	165E
0859 Oct 15	17:56:19	2471	74	-14103	79	N	-a	1.0723	0.9117	-0.1305	257.5	-	-	11N	97E
0860 Apr 09	12:04:11	2467	74	-14097	84	T	-p	-0.3898	2.1299	1.1553	318.5	199.9	57.4	10S	171W
0860 Oct 03	21:30:13	2464	74	-14091	89	T	-t	0.3902	2.1857	1.0991	362.6	215.0	50.2	6N	45E
0861 Mar 30	03:58:51	2460	74	-14085	94	T	p-	0.3384	2.2120	1.2616	310.2	199.5	70.4	5S	49W
0861 Sep 22	21:05:23	2456	73	-14079	99	T	t-	-0.3184	2.3172	1.2311	367.5	222.2	73.5	1N	52E
0862 Mar 19	20:18:48	2453	73	-14073	104	N	a-	1.0599	0.8982	-0.0722	237.4	-	-	0S	68E
0862 Sep 12	00:13:25	2449	73	-14067	109	Nx	h-	-1.0202	1.0058	-0.0334	269.4	-	-	4S	6E
0863 Feb 07	18:19:11	2446	73	-14062	76	P	-h	-0.9644	1.1200	0.0574	286.3	56.9	-	13N	99E
0863 Aug 03	02:09:28	2443	73	-14056	81	P	-a	0.9140	1.1581	0.2034	259.1	96.4	-	16S	21W
0864 Jan 27	19:30:32	2439	73	-14050	86	T	-p	-0.2820	2.3908	1.2912	372.3	225.5	80.8	17N	81E
0864 Jul 22	19:08:50	2436	73	-14044	91	T+	-p	0.1860	2.4898	1.5432	316.2	208.5	91.8	19S	84E
0865 Jan 15	19:08:19	2432	73	-14038	96	T	t-	0.4084	2.1516	1.0665	358.1	211.3	41.2	21N	87E
0865 Jul 12	10:31:02	2428	73	-14032	101	P	a-	-0.5711	1.8003	0.8197	310.3	181.1	-	22S	147W
0866 Jan 05	00:19:38	2425	73	-14026	106	N	a-	1.0738	0.9043	-0.1284	252.2	-	-	23N	8E

0866 Jun 02	06:59:11	2422	73	-14021	73	N	-t	1.3794	0.3551	-0.7004	177.1	-	-	22S	95W
0866 Jul 01	20:03:49	2421	73	-14020	111	N	t-	-1.3913	0.3223	-0.7117	164.7	-	-	24S	70E
0866 Nov 26	01:34:35	2418	73	-14015	78	P	-a	-1.0058	0.9983	0.0266	243.5	35.4	-	21N	16W
0867 May 22	07:49:04	2415	73	-14009	83	P	-t	0.6379	1.7221	0.6537	342.2	181.0	-	21S	108W
0867 Nov 15	17:06:38	2411	73	-14003	88	T	-p	-0.3516	2.2048	1.2208	317.0	199.9	66.0	19N	110E
0868 May 10	10:35:22	2408	72	-13997	93	T-	pp	-0.1412	2.6162	1.5820	356.2	226.7	99.5	19S	150W
0868 Nov 04	05:04:29	2404	72	-13991	98	T	p-	0.3492	2.2338	1.2009	338.3	208.4	65.9	17N	70W
0869 Apr 29	20:15:58	2401	72	-13985	103	P	a-	-0.8877	1.2196	0.2385	273.5	106.9	-	17S	64E
0869 Oct 24	10:04:29	2397	72	-13979	108	N	t-	1.0911	0.8984	-0.1855	268.5	-	-	14N	145W
0870 Mar 21	03:58:18	2394	72	-13974	75	P	-a	0.9686	1.0570	0.1039	248.0	69.2	-	1S	48W
0870 Sep 13	16:25:21	2391	72	-13968	80	N	-t	-1.1753	0.7390	-0.3353	247.4	-	-	3S	123E
0871 Mar 10	19:30:37	2387	72	-13962	85	T	-p	0.2752	2.3457	1.3602	325.7	208.5	81.6	3N	80E
0871 Sep 02	21:38:22	2384	72	-13956	90	T	-p	-0.4002	2.1338	1.1138	335.4	205.2	51.3	7S	45E
0872 Feb 28	05:40:02	2380	72	-13950	95	P	t-	-0.4701	2.0176	0.9735	339.4	200.2	-	6N	72W
0872 Aug 22	10:06:52	2376	72	-13944	100	T	a-	0.3478	2.2030	1.2363	316.5	201.5	68.3	10S	142W
0873 Feb 16	08:26:13	2373	72	-13938	105	N	t-	-1.2182	0.6683	-0.4219	239.9	-	-	10N	113W
0873 Jul 13	19:19:34	2370	72	-13933	72	N	-a	-1.4698	0.1366	-0.8149	98.5	-	-	23S	81E
0873 Aug 12	02:38:44	2369	72	-13932	110	N	a-	1.0509	0.9035	-0.0444	232.8	-	-	13S	30W
0874 Jan 06	14:34:22	2366	72	-13927	77	N	-t	1.0837	0.9065	-0.1666	265.0	-	-	23N	154E
0874 Jul 03	09:30:28	2363	72	-13921	82	P	-a	-0.7775	1.4286	0.4340	294.7	142.3	-	24S	132W
0874 Dec 26	21:50:38	2359	71	-13915	87	T	-p	0.3439	2.2355	1.2186	330.8	205.7	67.3	24N	44E
0875 Jun 22	17:01:42	2356	71	-13909	92	T-	pp	-0.0154	2.8534	1.8066	364.2	231.9	105.4	24S	114E
0875 Dec 16	11:22:39	2352	71	-13903	97	T	p-	-0.3422	2.2181	1.2419	313.8	199.1	68.0	23N	161W
0876 Jun 10	18:27:42	2349	71	-13897	102	P	t-	0.7585	1.5012	0.4321	328.7	152.7	-	23S	92E
0876 Dec 05	03:02:12	2345	71	-13891	107	P	a-	-1.0028	1.0070	0.0289	246.1	37.1	-	22N	37W
0877 May 01	08:04:46	2343	71	-13886	74	N	-t	-1.2529	0.5694	-0.4509	209.8	-	-	18S	113W
0877 May 30	20:15:06	2342	71	-13885	112	N	t-	1.4859	0.1533	-0.8897	116.7	-	-	21S	65E
0877 Oct 26	02:03:39	2339	71	-13880	79	N	-a	1.0920	0.8786	-0.1695	254.8	-	-	15N	25W
0878 Apr 20	19:36:48	2336	71	-13874	84	T	-a	-0.4498	2.0173	1.0478	313.6	193.8	32.8	14S	75E
0878 Oct 15	05:08:08	2332	71	-13868	89	T	-t	0.4180	2.1370	1.0458	361.9	212.2	34.7	11N	71W
0879 Apr 10	11:50:01	2329	71	-13862	94	T	p-	0.2849	2.3087	1.3611	312.2	203.0	79.9	9S	168W
0879 Oct 04	04:33:28	2325	71	-13856	99	T	p-	-0.2824	2.3842	1.2962	368.9	224.6	81.1	6N	62W
0880 Mar 30	04:11:39	2322	71	-13850	104	P	a-	1.0162	0.9783	0.0083	246.3	20.2	-	5S	52W
0880 Sep 22	07:54:37	2318	71	-13844	109	P	a-	-0.9786	1.0822	0.0429	276.3	48.5	-	1N	111W
0881 Feb 18	02:09:35	2315	71	-13839	76	P	-h	-0.9928	1.0679	0.0054	281.9	17.7	-	9N	19W
0881 Aug 13	09:51:16	2312	70	-13833	81	P	-a	0.9707	1.0543	0.0990	249.6	68.1	-	13S	138W
0882 Feb 07	03:12:18	2308	70	-13827	86	T	-p	-0.3049	2.3476	1.2504	371.2	223.9	76.2	14N	34W
0882 Aug 03	02:47:02	2305	70	-13821	91	T+	-p	0.2497	2.3745	1.4248	315.0	205.8	85.0	16S	31W
0883 Jan 27	03:04:45	2301	70	-13815	96	T	t-	0.3917	2.1799	1.0994	357.8	212.8	49.8	18N	33W
0883 Jul 23	17:49:05	2298	70	-13809	101	P	a-	-0.5036	1.9265	0.9411	317.1	190.5	-	20S	103E

0884	Jan 16	08:45:19	2295	70	-13803	106	N	a-	1.0631	0.9214	-0.1065	253.1	-	-	21N	118W
0884	Jun 12	13:29:08	2292	70	-13798	73	N	-t	1.4652	0.1985	-0.8590	134.6	-	-	22S	167E
0884	Jul 12	02:49:49	2291	70	-13797	111	N	t-	-1.3184	0.4583	-0.5802	194.8	-	-	23S	32W
0884	Dec 06	10:26:33	2288	70	-13792	78	P	-a	-1.0085	0.9932	0.0215	242.9	31.8	-	22N	148W
0885	Jun 01	14:13:06	2285	70	-13786	83	P	-t	0.7240	1.5631	0.4965	331.9	161.7	-	22S	155E
0885	Nov 26	01:52:25	2281	70	-13780	88	T	-p	-0.3570	2.1963	1.2094	317.6	199.8	64.6	22N	21W
0886	May 21	17:22:23	2278	70	-13774	93	T-	pp	-0.0604	2.7621	1.7325	355.7	228.0	103.6	21S	108E
0886	Nov 15	13:28:34	2274	70	-13768	98	T	p-	0.3418	2.2497	1.2121	340.1	209.5	67.6	20N	164E
0887	May 11	03:34:43	2271	70	-13762	103	P	a-	-0.8152	1.3502	0.3738	282.3	130.8	-	20S	46W
0887	Nov 04	17:59:46	2268	70	-13756	108	N	t-	1.0766	0.9272	-0.1612	272.8	-	-	18N	95E
0888	Mar 31	11:55:05	2265	69	-13751	75	P	-a	1.0182	0.9651	0.0141	239.3	25.8	-	5S	168W
0888	Apr 29	19:18:29	2264	69	-13750	113	Nb	a-	-1.5016	0.0751	-0.8702	72.8	-	-	17S	78E
0888	Sep 23	23:50:42	2261	69	-13745	80	N	-t	-1.2137	0.6692	-0.4063	236.6	-	-	1N	10E
0889	Mar 21	03:24:44	2258	69	-13739	85	T	-p	0.3201	2.2631	1.2779	324.8	206.1	74.0	2S	40W
0889	Sep 13	05:19:16	2254	69	-13733	90	T	-p	-0.4437	2.0538	1.0340	331.6	200.1	28.7	3S	72W
0890	Mar 10	13:19:01	2251	69	-13727	95	T	t-	-0.4314	2.0885	1.0446	343.1	205.2	33.4	2N	172E
0890	Sep 02	18:00:29	2248	69	-13721	100	T	p-	0.2984	2.2941	1.3266	318.1	204.5	77.7	6S	98E
0891	Feb 27	15:53:14	2244	69	-13715	105	N	t-	-1.1836	0.7307	-0.3572	249.5	-	-	6N	134E
0891	Jul 25	02:50:12	2241	69	-13710	72	Ne	-a	-1.5376	0.0140	-0.9411	31.9	-	-	21S	32W
0891	Aug 23	10:29:31	2241	69	-13709	110	P	a-	0.9979	1.0022	0.0512	242.9	49.0	-	9S	148W
0892	Jan 17	22:43:33	2238	69	-13704	77	N	-t	1.0911	0.8906	-0.1780	262.2	-	-	21N	32E
0892	Jul 13	16:36:40	2235	69	-13698	82	P	-a	-0.8546	1.2896	0.2902	285.8	119.3	-	22S	121E
0893	Jan 06	06:26:44	2231	69	-13692	87	T	-p	0.3473	2.2272	1.2143	329.3	205.0	66.6	22N	85W
0893	Jul 02	23:37:11	2228	69	-13686	92	T-	pp	-0.0997	2.7004	1.6500	364.9	231.2	103.0	23S	16E
0893	Dec 26	20:14:07	2224	69	-13680	97	T	p-	-0.3392	2.2229	1.2483	313.4	199.1	68.7	23N	67E
0894	Jun 22	00:48:59	2221	69	-13674	102	P	t-	0.6703	1.6630	0.5939	339.3	174.5	-	23S	3W
0894	Dec 16	11:53:06	2218	68	-13668	107	P	a-	-1.0020	1.0092	0.0297	246.8	37.6	-	23N	169W
0895	May 12	15:05:14	2215	68	-13663	74	N	-t	-1.3198	0.4441	-0.5711	186.7	-	-	20S	141E
0895	Jun 11	02:54:18	2214	68	-13662	112	N	t-	1.4019	0.3057	-0.7340	162.0	-	-	22S	35W
0895	Nov 06	10:15:05	2211	68	-13657	79	N	-a	1.1078	0.8523	-0.2010	252.7	-	-	18N	148W
0896	May 01	03:06:43	2208	68	-13651	84	P	-a	-0.5128	1.8993	0.9344	308.0	186.4	-	17S	39W
0896	Oct 25	12:52:48	2205	68	-13645	89	T	-t	0.4401	2.0985	1.0032	361.4	209.8	9.2	14N	172E
0897	Apr 20	19:34:14	2201	68	-13639	94	T+	p-	0.2254	2.4167	1.4714	314.0	206.2	87.7	13S	75E
0897	Oct 14	12:11:04	2198	68	-13633	99	T-	p-	-0.2537	2.4377	1.3481	369.7	226.1	86.1	10N	177W
0898	Apr 10	11:54:57	2195	68	-13627	104	P	a-	0.9649	1.0724	0.1026	255.9	70.3	-	9S	169W
0898	Oct 03	15:47:08	2191	68	-13621	109	P	a-	-0.9454	1.1432	0.1040	281.3	74.7	-	5N	130E
0899	Mar 01	09:48:12	2188	68	-13616	76	N	-t	-1.0300	0.9994	-0.0626	275.4	-	-	5N	135W
0899	Aug 24	17:42:14	2185	68	-13610	81	P	-a	1.0204	0.9638	0.0073	240.7	18.7	-	9S	103E
0900	Feb 18	10:45:12	2182	68	-13604	86	T	-p	-0.3349	2.2912	1.1968	369.4	221.6	68.9	10N	149W
0900	Aug 13	10:30:03	2178	68	-13598	91	T	-p	0.3091	2.2672	1.3140	313.4	202.4	76.1	13S	148W

10TH CENTURY CE

In the 10th century CE the total number of lunar eclipses was 230 lunar eclipses: 82 penumbral lunar eclipses, 70 partial lunar eclipses, 78 total lunar eclipses (33 central total lunar eclipses, 45 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
ECLIPSE															
0901 Feb 06	10:56:27	2175	68	-13592	96	T	t-	0.3705	2.2162	1.1409	357.6	214.6	58.4	14N	151W
0901 Aug 03	01:09:24	2172	67	-13586	101	T	a-	-0.4389	2.0481	1.0572	323.1	198.2	36.5	17S	7W
0902 Jan 26	17:07:14	2168	67	-13580	106	N	a-	1.0484	0.9457	-0.0770	254.7	-	-	18N	116E
0902 Jun 23	19:56:08	2166	67	-13575	73	Ne	-t	1.5524	0.0398	-1.0201	61.3	-	-	22S	70E
0902 Jul 23	09:37:03	2165	67	-13574	111	N	t-	-1.2468	0.5923	-0.4511	219.5	-	-	20S	134W
0902 Dec 17	19:20:28	2162	67	-13569	78	P	-a	-1.0103	0.9898	0.0185	242.5	29.5	-	23N	79E
0903 Jun 12	20:36:52	2159	67	-13563	83	P	-t	0.8107	1.4033	0.3381	319.9	136.6	-	23S	59E
0903 Dec 07	10:39:56	2156	67	-13557	88	T	-p	-0.3608	2.1907	1.2013	318.3	199.8	63.5	23N	152W
0904 Jun 01	00:10:25	2152	67	-13551	93	T+	pp	0.0207	2.8329	1.8075	354.3	227.7	104.2	23S	5E
0904 Nov 25	21:55:36	2149	67	-13545	98	T	p-	0.3376	2.2597	1.2178	341.8	210.3	68.5	22N	38E
0905 May 21	10:51:25	2146	67	-13539	103	P	a-	-0.7400	1.4861	0.5140	290.3	149.7	-	22S	155W
0905 Nov 15	01:59:53	2142	67	-13533	108	N	t-	1.0663	0.9479	-0.1442	276.0	-	-	21N	25W
0906 Apr 11	19:45:20	2140	67	-13528	75	N	-a	1.0731	0.8635	-0.0857	228.9	-	-	9S	73E
0906 May 11	02:52:38	2139	67	-13527	113	N	a-	-1.4356	0.1951	-0.7479	115.9	-	-	20S	36W
0906 Oct 05	07:26:00	2136	67	-13522	80	N	-t	-1.2448	0.6126	-0.4639	227.2	-	-	5N	105W
0907 Apr 01	11:10:15	2133	67	-13516	85	T	-a	0.3717	2.1685	1.1832	323.2	202.7	62.2	6S	158W
0907 Sep 24	13:11:05	2130	67	-13510	90	P	-a	-0.4792	1.9886	0.9689	328.1	195.4	-	2N	169E
0908 Mar 20	20:48:29	2126	67	-13504	95	T	p-	-0.3854	2.1729	1.1290	346.9	210.5	55.4	2S	58E
0908 Sep 13	02:02:14	2123	66	-13498	100	T+	p-	0.2551	2.3739	1.4056	319.2	206.6	84.0	2S	23W
0909 Mar 09	23:10:40	2120	66	-13492	105	N	t-	-1.1412	0.8073	-0.2783	260.3	-	-	1N	23E

0909 Sep 02	18:27:32	2116	66	-13486	110	P	a-	0.9508	1.0904	0.1360	251.2	78.9	-	5S	91E
0910 Jan 28	06:46:24	2114	66	-13481	77	N	-t	1.1043	0.8638	-0.1996	257.9	-	-	18N	88W
0910 Jul 24	23:45:42	2110	66	-13475	82	P	-a	-0.9284	1.1569	0.1522	276.0	88.4	-	20S	14E
0911 Jan 17	14:58:39	2107	66	-13469	87	T	-p	0.3551	2.2107	1.2024	327.6	204.0	64.9	20N	148E
0911 Jul 14	06:14:51	2104	66	-13463	92	T-	pp	-0.1815	2.5523	1.4980	364.5	229.0	96.8	21S	84W
0912 Jan 07	05:02:50	2101	66	-13457	97	T	p-	-0.3335	2.2323	1.2598	313.2	199.5	70.0	22N	64W
0912 Jul 02	07:12:31	2097	66	-13451	102	P	t-	0.5832	1.8229	0.7534	348.1	191.2	-	22S	99W
0912 Dec 26	20:43:47	2094	66	-13445	107	P	a-	-1.0013	1.0108	0.0304	247.3	38.1	-	22N	59E
0913 May 22	22:01:57	2091	66	-13440	74	N	-t	-1.3905	0.3119	-0.6984	157.7	-	-	23S	37E
0913 Jun 21	09:33:18	2091	66	-13439	112	N	t-	1.3162	0.4616	-0.5753	195.4	-	-	22S	135W
0913 Nov 16	18:32:19	2088	66	-13434	79	N	-a	1.1182	0.8356	-0.2223	251.6	-	-	21N	87E
0914 May 12	10:31:50	2085	66	-13428	84	P	-a	-0.5808	1.7725	0.8117	301.4	177.1	-	20S	151W
0914 Nov 05	20:44:36	2082	66	-13422	89	P	-t	0.4561	2.0710	0.9721	361.1	208.0	-	18N	54E
0915 May 02	03:13:16	2078	65	-13416	94	T+	p-	0.1614	2.5333	1.5899	315.6	208.9	93.6	16S	41W
0915 Oct 25	19:58:19	2075	65	-13410	99	T-	p-	-0.2320	2.4780	1.3872	370.1	227.0	89.2	14N	65E
0916 Apr 20	19:32:04	2072	65	-13404	104	P	a-	0.9091	1.1748	0.2048	265.5	98.2	-	12S	75E
0916 Oct 13	23:47:56	2069	65	-13398	109	P	a-	-0.9179	1.1934	0.1545	284.9	90.1	-	9N	8E
0917 Mar 11	17:18:40	2066	65	-13393	76	N	-t	-1.0729	0.9203	-0.1410	267.1	-	-	1N	111E
0917 Sep 04	01:39:56	2063	65	-13387	81	N	-a	1.0648	0.8831	-0.0749	232.1	-	-	5S	18W
0918 Feb 28	18:09:07	2059	65	-13381	86	T	-t	-0.3720	2.2213	1.1302	367.1	218.4	57.4	6N	99E
0918 Aug 24	18:19:45	2056	65	-13375	91	T	-p	0.3626	2.1711	1.2139	311.8	198.7	65.0	9S	94E
0919 Feb 17	18:40:49	2053	65	-13369	96	T	t-	0.3426	2.2646	1.1947	357.6	216.7	67.3	11N	92E
0919 Aug 14	08:35:15	2050	65	-13363	101	T	p-	-0.3794	2.1602	1.1636	328.3	204.4	59.8	14S	120W
0920 Feb 07	01:22:50	2046	65	-13357	106	N	a-	1.0280	0.9804	-0.0367	257.3	-	-	15N	8W
0920 Aug 02	16:29:20	2043	65	-13351	111	N	t-	-1.1795	0.7183	-0.3303	239.7	-	-	18S	122E
0920 Dec 28	04:12:38	2041	65	-13346	78	P	-a	-1.0135	0.9835	0.0130	241.8	24.7	-	22N	53W
0921 Jun 23	03:00:48	2037	65	-13340	83	P	-t	0.8972	1.2441	0.1799	306.1	101.9	-	23S	37W
0921 Dec 17	19:27:36	2034	65	-13334	88	T	-p	-0.3639	2.1860	1.1946	319.0	199.9	62.7	23N	77E
0922 Jun 12	06:58:12	2031	64	-13328	93	T+	pp	0.1025	2.6808	1.6590	352.0	225.9	101.6	23S	97W
0922 Dec 07	06:23:34	2028	64	-13322	98	T	p-	0.3349	2.2663	1.2209	343.3	211.0	69.0	24N	89W
0923 Jun 01	18:06:56	2024	64	-13316	103	P	a-	-0.6631	1.6255	0.6569	297.4	165.0	-	23S	96E
0923 Nov 26	10:04:23	2021	64	-13310	108	N	t-	1.0604	0.9604	-0.1348	278.1	-	-	23N	145W
0924 Apr 22	03:28:20	2019	64	-13305	75	N	-a	1.1338	0.7513	-0.1965	216.2	-	-	13S	44W
0924 May 21	10:22:43	2018	64	-13304	113	N	a-	-1.3662	0.3217	-0.6196	147.0	-	-	23S	149W
0924 Oct 15	15:10:46	2015	64	-13299	80	N	-t	-1.2688	0.5689	-0.5084	219.4	-	-	10N	138E
0925 Apr 11	18:46:50	2012	64	-13293	85	T	-a	0.4300	2.0618	1.0762	320.9	197.9	41.6	10S	87E
0925 Oct 04	21:12:30	2009	64	-13287	90	P	-a	-0.5078	1.9362	0.9166	325.0	191.2	-	6N	47E
0926 Apr 01	04:06:47	2006	64	-13281	95	T	p-	-0.3310	2.2728	1.2290	350.9	216.0	71.6	7S	53W
0926 Sep 24	10:13:17	2003	64	-13275	100	T+	p-	0.2191	2.4405	1.4710	319.8	207.9	88.1	2N	147W
0927 Mar 21	06:19:13	2000	64	-13269	105	N	t-	-1.0916	0.8969	-0.1861	272.0	-	-	3S	85W

0927 Sep 14	02:32:23	1996	64	-13263	110	P	a-	0.9096	1.1677	0.2097	258.2	97.1	-	1S	32W
0928 Feb 08	14:44:57	1994	64	-13258	77	N	-t	1.1215	0.8293	-0.2285	252.5	-	-	14N	152E
0928 Aug 04	06:58:18	1991	64	-13252	82	P	-a	-0.9982	1.0317	0.0214	265.5	33.9	-	17S	95W
0929 Jan 27	23:27:20	1987	63	-13246	87	T	-p	0.3661	2.1880	1.1845	325.6	202.7	62.2	17N	21E
0929 Jul 24	12:54:29	1984	63	-13240	92	T-	pp	-0.2610	2.4086	1.3499	363.2	225.1	86.3	19S	176E
0930 Jan 17	13:48:34	1981	63	-13234	97	T	p-	-0.3251	2.2464	1.2763	313.1	200.0	71.8	19N	165E
0930 Jul 13	13:40:12	1978	63	-13228	102	P	t-	0.4990	1.9779	0.9076	355.3	204.1	-	21S	164E
0931 Jan 07	05:30:28	1975	63	-13222	107	P	a-	-0.9977	1.0177	0.0368	248.4	42.0	-	21N	72W
0931 Jun 03	05:00:09	1972	63	-13217	74	N	-t	-1.4606	0.1811	-0.8251	121.0	-	-	24S	68W
0931 Jul 02	16:18:00	1972	63	-13216	112	N	t-	1.2336	0.6119	-0.4226	221.0	-	-	22S	124E
0931 Nov 28	02:51:35	1969	63	-13211	79	N	-a	1.1266	0.8220	-0.2399	250.8	-	-	23N	37W
0932 May 22	17:55:26	1966	63	-13205	84	P	-a	-0.6506	1.6427	0.6854	294.0	165.8	-	22S	98E
0932 Nov 16	04:40:43	1963	63	-13199	89	P	-t	0.4684	2.0499	0.9482	361.0	206.5	-	21N	65W
0933 May 12	10:47:22	1960	63	-13193	94	T+	pp	0.0930	2.6582	1.7160	316.7	210.7	97.6	19S	155W
0933 Nov 05	03:53:06	1956	63	-13187	99	T-	p-	-0.2163	2.5071	1.4158	370.1	227.5	91.2	17N	54W
0934 May 02	03:00:04	1953	63	-13181	104	P	a-	0.8464	1.2902	0.3195	275.5	121.0	-	16S	38W
0934 Oct 25	07:58:50	1950	63	-13175	109	P	a-	-0.8979	1.2298	0.1914	287.1	99.4	-	13N	115W
0935 Mar 23	00:37:28	1948	63	-13170	76	N	-t	-1.1244	0.8256	-0.2352	256.1	-	-	4S	0W
0935 Sep 15	09:46:24	1944	63	-13164	81	N	-a	1.1025	0.8148	-0.1449	224.4	-	-	0S	141W
0935 Oct 14	19:25:54	1944	63	-13163	119	N	a-	-1.5284	0.0450	-0.9379	57.9	-	-	9N	73E
0936 Mar 11	01:23:47	1941	62	-13158	86	T	-t	-0.4167	2.1376	1.0499	363.9	213.9	36.5	1N	11W
0936 Sep 04	02:16:09	1938	62	-13152	91	T	-a	0.4102	2.0860	1.1244	310.1	194.8	51.0	5S	27W
0937 Feb 28	02:18:01	1935	62	-13146	96	T	p-	0.3080	2.3250	1.2611	357.8	219.2	76.1	6N	23W
0937 Aug 24	16:05:39	1932	62	-13140	101	T	p-	-0.3244	2.2642	1.2615	332.8	209.2	73.3	10S	127E
0938 Feb 17	09:33:13	1929	62	-13134	106	P	a-	1.0024	1.0243	0.0132	260.6	26.2	-	11N	131W
0938 Aug 13	23:26:15	1926	62	-13128	111	N	t-	-1.1164	0.8369	-0.2173	256.8	-	-	14S	17E
0939 Jan 08	13:02:46	1923	62	-13123	78	P	-a	-1.0187	0.9734	0.0042	240.7	14.0	-	21N	175E
0939 Jul 04	09:28:24	1920	62	-13117	83	P	-t	0.9807	1.0906	0.0271	291.0	40.3	-	22S	133W
0939 Dec 29	04:14:41	1917	62	-13111	88	T	-p	-0.3669	2.1813	1.1883	319.7	200.0	61.9	23N	54W
0940 Jun 22	13:48:31	1914	62	-13105	93	T+	pp	0.1834	2.5309	1.5123	348.8	222.7	95.4	23S	161E
0940 Dec 17	14:51:48	1911	62	-13099	98	T	p-	0.3332	2.2710	1.2226	344.7	211.6	69.4	24N	145E
0941 Jun 12	01:23:04	1908	62	-13093	103	P	a-	-0.5859	1.7656	0.8002	303.5	177.3	-	24S	13W
0941 Dec 06	18:10:03	1905	62	-13087	108	N	t-	1.0552	0.9710	-0.1264	279.9	-	-	24N	94E
0942 May 03	11:05:32	1902	62	-13082	75	N	-a	1.1993	0.6307	-0.3163	200.7	-	-	16S	159W
0942 Jun 01	17:51:00	1902	62	-13081	113	N	a-	-1.2948	0.4522	-0.4881	172.0	-	-	24S	99E
0942 Oct 26	23:04:33	1899	62	-13076	80	N	-t	-1.2864	0.5368	-0.5407	213.4	-	-	13N	18E
0943 Apr 23	02:16:21	1896	61	-13070	85	P	-a	0.4935	1.9455	0.9591	317.7	191.5	-	13S	27W
0943 Oct 16	05:22:30	1893	61	-13064	90	P	-a	-0.5302	1.8949	0.8757	322.2	187.7	-	10N	76W
0944 Apr 11	11:16:31	1890	61	-13058	95	T-	pp	-0.2701	2.3845	1.3404	354.7	221.0	84.2	10S	162W
0944 Oct 04	18:32:39	1887	61	-13052	100	T+	p-	0.1897	2.4951	1.5245	320.2	208.8	90.8	7N	86E

0945 Mar 31	13:17:06	1884	61	-13046	105	Nx	t-	-1.0334	1.0025	-0.0779	284.4	-	-	7S	169E
0945 Sep 24	10:45:36	1881	61	-13040	110	P	a-	0.8755	1.2323	0.2705	263.8	109.4	-	3N	156W
0946 Feb 18	22:35:39	1878	61	-13035	77	N	-t	1.1459	0.7816	-0.2702	245.3	-	-	11N	33E
0946 Aug 15	14:16:39	1875	61	-13029	82	N	-a	-1.0623	0.9170	-0.0994	254.5	-	-	14S	155E
0947 Feb 08	07:48:39	1872	61	-13023	87	T	-p	0.3841	2.1522	1.1540	323.3	200.8	57.3	14N	105W
0947 Aug 04	19:39:51	1869	61	-13017	92	T	-t	-0.3353	2.2746	1.2113	361.2	220.0	70.6	16S	74E
0948 Jan 28	22:29:37	1866	61	-13011	97	T	p-	-0.3124	2.2683	1.3010	313.2	200.8	74.3	17N	34E
0948 Jul 23	20:11:32	1863	61	-13005	102	T	t-	0.4171	2.1287	1.0573	361.1	214.0	39.0	19S	66E
0949 Jan 17	14:14:17	1860	61	-12999	107	P	a-	-0.9922	1.0279	0.0469	249.8	47.4	-	19N	157E
0949 Jun 13	11:57:19	1857	61	-12994	74	Ne	-t	-1.5325	0.0474	-0.9550	62.4	-	-	25S	172W
0949 Jul 12	23:05:31	1857	61	-12993	112	N	t-	1.1516	0.7614	-0.2712	242.0	-	-	20S	22E
0949 Dec 08	11:12:58	1854	61	-12988	79	N	-a	1.1325	0.8130	-0.2523	250.6	-	-	24N	161W
0950 Jun 03	01:16:22	1851	60	-12982	84	P	-a	-0.7231	1.5082	0.5537	285.5	151.9	-	24S	12W
0950 Nov 27	12:41:39	1848	60	-12976	89	P	-t	0.4765	2.0360	0.9322	360.9	205.5	-	23N	175E
0951 May 23	18:18:22	1845	60	-12970	94	T+	pp	0.0221	2.7878	1.8463	317.4	211.7	99.4	21S	92E
0951 Nov 16	11:53:40	1842	60	-12964	99	T-	p-	-0.2046	2.5285	1.4373	369.8	227.7	92.6	20N	174W
0952 May 12	10:23:52	1839	60	-12958	104	P	a-	0.7808	1.4112	0.4393	285.0	139.8	-	19S	150W
0952 Nov 04	16:16:41	1836	60	-12952	109	P	a-	-0.8827	1.2572	0.2198	288.5	105.8	-	16N	120E
0953 Apr 02	07:47:04	1834	60	-12947	76	N	-t	-1.1824	0.7188	-0.3413	242.0	-	-	8S	109W
0953 Sep 25	18:00:24	1831	60	-12941	81	N	-a	1.1343	0.7573	-0.2043	217.4	-	-	4N	95E
0953 Oct 25	03:56:14	1830	60	-12940	119	N	a-	-1.5087	0.0813	-0.9019	77.4	-	-	12N	55W
0954 Mar 22	08:29:45	1828	60	-12935	86	P	-t	-0.4686	2.0405	0.9565	359.7	207.8	-	3S	119W
0954 Sep 15	10:20:07	1825	60	-12929	91	T	-a	0.4511	2.0133	1.0472	308.5	191.0	32.2	1S	149W
0955 Mar 11	09:47:17	1822	60	-12923	96	T+	p-	0.2661	2.3989	1.3411	357.9	221.7	84.3	2N	137W
0955 Sep 04	23:43:34	1819	60	-12917	101	T	p-	-0.2764	2.3554	1.3464	336.6	213.0	82.0	6S	11E
0956 Feb 28	17:36:36	1816	60	-12911	106	P	a-	0.9705	1.0798	0.0748	264.8	61.7	-	7N	107E
0956 Aug 24	06:28:53	1813	60	-12905	111	N	t-	-1.0584	0.9463	-0.1136	271.0	-	-	10S	89W
0957 Jan 18	21:48:35	1810	60	-12900	78	N	-a	-1.0274	0.9565	-0.0111	239.0	-	-	18N	44E
0957 Jul 14	15:59:50	1807	60	-12894	83	N	-t	1.0609	0.9433	-0.1200	274.4	-	-	20S	128E
0958 Jan 08	12:57:22	1804	59	-12888	88	T	-p	-0.3732	2.1701	1.1761	320.2	199.9	60.3	21N	176E
0958 Jul 03	20:42:05	1801	59	-12882	93	T+	pp	0.2624	2.3845	1.3685	344.8	218.0	85.5	22S	58E
0958 Dec 28	23:17:37	1798	59	-12876	98	T	p-	0.3303	2.2775	1.2268	346.1	212.4	70.1	23N	20E
0959 Jun 23	08:40:40	1795	59	-12870	103	P	a-	-0.5089	1.9055	0.9425	308.5	187.2	-	24S	123W
0959 Dec 18	02:15:50	1792	59	-12864	108	N	t-	1.0506	0.9803	-0.1186	281.5	-	-	25N	26W
0960 May 13	18:37:46	1790	59	-12859	75	N	-a	1.2685	0.5036	-0.4431	181.8	-	-	19S	87E
0960 Jun 12	01:18:07	1790	59	-12858	113	N	a-	-1.2224	0.5848	-0.3551	193.1	-	-	25S	13W
0960 Nov 06	07:06:42	1787	59	-12853	80	N	-t	-1.2977	0.5158	-0.5615	209.1	-	-	17N	102W
0961 May 03	09:36:52	1784	59	-12847	85	P	-a	0.5637	1.8174	0.8299	313.4	182.9	-	17S	138W
0961 Oct 26	13:41:43	1781	59	-12841	90	P	-a	-0.5457	1.8662	0.8475	319.9	185.0	-	14N	158E
0962 Apr 22	18:16:46	1778	59	-12835	95	T-	pp	-0.2025	2.5088	1.4643	358.1	225.4	93.9	14S	92E

0962	Oct 16	03:00:30	1775	59	-12829	100	T+	p-	0.1671	2.5371	1.5654	320.4	209.2	92.5	11N	41W
0963	Apr 11	20:07:23	1772	59	-12823	105	P	t-	-0.9690	1.1194	0.0415	296.8	50.1	-	11S	65E
0963	Oct 05	19:06:21	1769	59	-12817	110	P	a-	0.8481	1.2846	0.3189	268.2	118.1	-	8N	77E
0964	Mar 01	06:21:07	1767	59	-12812	77	N	-t	1.1752	0.7247	-0.3208	236.5	-	-	6N	84W
0964	Aug 25	21:38:58	1764	59	-12806	82	N	-a	-1.1223	0.8103	-0.2124	243.1	-	-	10S	43E
0965	Feb 18	16:05:28	1761	58	-12800	87	T	-p	0.4066	2.1082	1.1156	320.6	198.5	50.2	10N	130E
0965	Aug 15	02:29:57	1758	58	-12794	92	T	-t	-0.4052	2.1488	1.0807	358.5	213.6	45.6	13S	29W
0966	Feb 08	07:03:58	1755	58	-12788	97	T	p-	-0.2941	2.3004	1.3361	313.5	202.0	77.5	13N	95W
0966	Aug 04	02:50:06	1752	58	-12782	102	T	t-	0.3407	2.2696	1.1968	365.4	221.2	69.0	16S	34W
0967	Jan 28	22:51:25	1749	58	-12776	107	P	a-	-0.9815	1.0474	0.0665	252.1	56.5	-	16N	28E
0967	Jul 24	06:00:35	1747	58	-12770	112	N	t-	1.0746	0.9019	-0.1292	258.7	-	-	18S	82W
0967	Dec 19	19:32:05	1744	58	-12765	79	N	-a	1.1397	0.8012	-0.2668	249.9	-	-	25N	75E
0968	Jun 13	08:38:39	1741	58	-12759	84	P	-a	-0.7952	1.3749	0.4227	276.2	135.1	-	24S	123W
0968	Dec 07	20:43:44	1738	58	-12753	89	P	-t	0.4835	2.0238	0.9187	360.8	204.7	-	24N	55E
0969	Jun 03	01:45:30	1735	58	-12747	94	T-	pp	-0.0519	2.7331	1.7916	317.4	211.6	99.0	23S	20W
0969	Nov 26	19:59:39	1733	58	-12741	99	T-	p-	-0.1968	2.5425	1.4520	369.3	227.7	93.4	22N	65E
0970	May 23	17:41:22	1730	58	-12735	104	P	a-	0.7103	1.5415	0.5677	294.3	156.3	-	21S	101E
0970	Nov 16	00:41:20	1727	58	-12729	109	P	a-	-0.8723	1.2757	0.2396	289.1	109.8	-	19N	6W
0971	Apr 13	14:46:04	1724	58	-12724	76	N	-t	-1.2481	0.5980	-0.4617	223.9	-	-	12S	145E
0971	May 13	04:03:30	1724	58	-12723	114	Nb	t-	1.5320	0.0619	-0.9675	73.4	-	-	18S	55W
0971	Oct 07	02:23:42	1722	58	-12718	81	N	-a	1.1592	0.7126	-0.2510	211.8	-	-	8N	32W
0971	Nov 05	12:34:25	1721	58	-12717	119	N	a-	-1.4946	0.1072	-0.8761	88.5	-	-	16N	175E
0972	Apr 01	15:26:49	1719	57	-12712	86	P	-t	-0.5277	1.9303	0.8500	354.5	199.7	-	7S	136E
0972	Sep 25	18:30:48	1716	57	-12706	91	P	-a	0.4859	1.9516	0.9808	307.2	187.3	-	4N	87E
0973	Mar 21	17:09:40	1713	57	-12700	96	T+	p-	0.2177	2.4846	1.4329	357.9	224.1	91.5	2S	111E
0973	Sep 15	07:27:49	1710	57	-12694	101	T-	p-	-0.2346	2.4352	1.4198	339.8	215.8	87.9	1S	106W
0974	Mar 11	01:32:31	1707	57	-12688	106	P	a-	0.9318	1.1478	0.1489	269.8	85.9	-	3N	13W
0974	Sep 04	13:38:45	1704	57	-12682	111	Nx	t-	-1.0067	1.0440	-0.0216	282.9	-	-	6S	162E
0975	Jan 30	06:29:58	1702	57	-12677	78	N	-a	-1.0398	0.9328	-0.0329	236.5	-	-	15N	87W
0975	Jul 25	22:37:03	1699	57	-12671	83	N	-t	1.1367	0.8043	-0.2590	256.5	-	-	18S	29E
0976	Jan 19	21:36:12	1696	57	-12665	88	T	-a	-0.3822	2.1540	1.1592	320.5	199.6	57.7	19N	47E
0976	Jul 14	03:41:02	1693	57	-12659	93	T	-p	0.3378	2.2451	1.2313	340.0	212.0	70.9	21S	47W
0977	Jan 08	07:40:05	1691	57	-12653	98	T	p-	0.3253	2.2876	1.2351	347.6	213.3	71.4	22N	105W
0977	Jul 03	16:00:32	1688	57	-12647	103	T	a-	-0.4332	2.0436	1.0823	312.6	195.1	42.6	23S	128E
0977	Dec 28	10:20:02	1685	57	-12641	108	N	t-	1.0450	0.9909	-0.1087	283.1	-	-	24N	146W
0978	May 25	02:06:38	1683	57	-12636	75	N	-a	1.3400	0.3727	-0.5744	158.6	-	-	20S	25W
0978	Jun 23	08:46:13	1682	57	-12635	113	N	a-	-1.1507	0.7164	-0.2238	210.9	-	-	25S	124W
0978	Nov 17	15:14:18	1680	57	-12630	80	N	-t	-1.3051	0.5018	-0.5746	206.0	-	-	19N	136E
0979	May 14	16:52:22	1677	57	-12624	85	P	-a	0.6369	1.6840	0.6947	307.9	171.7	-	19S	113E
0979	Nov 06	22:08:07	1674	56	-12618	90	P	-a	-0.5556	1.8474	0.8297	318.1	183.1	-	17N	32E

0980 May 03	01:09:15	1671	56	-12612	95	T-	pp	-0.1292	2.6437	1.5984	361.0	228.9	100.7	17S	12W
0980 Oct 26	11:35:06	1668	56	-12606	100	T+	p-	0.1498	2.5693	1.5966	320.4	209.5	93.6	15N	171W
0981 Apr 22	02:48:41	1666	56	-12600	105	P	t-	-0.8972	1.2499	0.1744	309.1	100.9	-	15S	36W
0981 Oct 16	03:34:37	1663	56	-12594	110	P	a-	0.8269	1.3253	0.3559	271.7	124.1	-	12N	51W
0982 Mar 12	13:56:51	1660	56	-12589	77	N	-t	1.2130	0.6520	-0.3871	224.9	-	-	2N	160E
0982 Sep 06	05:09:04	1658	56	-12583	82	N	-a	-1.1749	0.7170	-0.3121	231.9	-	-	6S	71W
0983 Mar 02	00:14:11	1655	56	-12577	87	T	-p	0.4366	2.0503	1.0633	317.4	195.2	37.6	6N	7E
0983 Aug 26	09:26:36	1652	56	-12571	92	P	-t	-0.4691	2.0341	0.9611	355.4	206.4	-	9S	135W
0984 Feb 19	15:31:45	1649	56	-12565	97	T-	p-	-0.2701	2.3429	1.3816	314.0	203.4	81.3	9N	137E
0984 Aug 14	09:35:28	1646	56	-12559	102	T+	pp	0.2693	2.4014	1.3271	368.5	226.4	84.7	13S	137W
0985 Feb 08	07:22:29	1644	56	-12553	107	P	a-	-0.9666	1.0746	0.0942	255.1	67.1	-	12N	100W
0985 Aug 03	13:01:09	1641	56	-12547	112	P	t-	1.0008	1.0368	0.0067	272.5	19.3	-	15S	172E
0985 Dec 30	03:50:32	1639	56	-12542	79	N	-h	1.1466	0.7894	-0.2806	249.1	-	-	24N	49W
0986 Jun 24	16:01:25	1636	56	-12536	84	P	-a	-0.8673	1.2418	0.2912	265.9	114.1	-	24S	127E
0986 Dec 19	04:46:20	1633	56	-12530	89	P	-t	0.4900	2.0122	0.9065	360.6	203.9	-	24N	64W
0987 Jun 14	09:12:33	1630	55	-12524	94	T-	-p	-0.1260	2.5976	1.6554	316.9	210.4	96.2	24S	132W
0987 Dec 08	04:09:17	1627	55	-12518	99	T-	p-	-0.1912	2.5521	1.4631	368.5	227.6	93.9	23N	56W
0988 Jun 03	00:55:36	1625	55	-12512	104	P	a-	0.6378	1.6756	0.6995	303.0	170.3	-	22S	8W
0988 Nov 26	09:10:34	1622	55	-12506	109	P	a-	-0.8648	1.2884	0.2542	289.1	112.5	-	21N	133W
0989 Apr 23	21:37:39	1620	55	-12501	76	N	-t	-1.3188	0.4682	-0.5913	201.0	-	-	16S	41E
0989 May 23	10:53:17	1619	55	-12500	114	N	t-	1.4609	0.1934	-0.8380	128.7	-	-	20S	158W
0989 Oct 17	10:53:50	1617	55	-12495	81	N	-a	1.1786	0.6780	-0.2874	207.2	-	-	13N	161W
0989 Nov 15	21:17:13	1616	55	-12494	119	N	a-	-1.4844	0.1258	-0.8572	95.6	-	-	19N	45E
0990 Apr 12	22:15:46	1614	55	-12489	86	P	-t	-0.5932	1.8082	0.7314	347.9	189.0	-	11S	32E
0990 Oct 07	02:49:22	1611	55	-12483	91	P	-a	0.5138	1.9029	0.9275	306.2	184.2	-	8N	39W
0991 Apr 02	00:25:21	1609	55	-12477	96	T+	pp	0.1630	2.5818	1.5362	357.7	226.1	97.4	7S	1E
0991 Sep 26	15:18:40	1606	55	-12471	101	T-	pp	-0.1992	2.5034	1.4817	342.7	218.0	92.0	3N	135E
0992 Mar 21	09:21:49	1603	55	-12465	106	P	a-	0.8868	1.2272	0.2343	275.4	106.2	-	2S	132W
0992 Sep 14	20:56:17	1600	55	-12459	111	P	t-	-0.9616	1.1296	0.0583	292.7	58.3	-	2S	51E
0993 Feb 09	15:03:51	1598	55	-12454	78	N	-a	-1.0585	0.8975	-0.0661	232.8	-	-	12N	144E
0993 Mar 11	00:08:24	1598	55	-12453	116	Nb	a-	1.5409	0.0098	-0.9489	26.6	-	-	3N	7E
0993 Aug 05	05:21:10	1595	55	-12448	83	N	-t	1.2071	0.6754	-0.3884	237.6	-	-	15S	73W
0994 Jan 30	06:07:53	1593	55	-12442	88	T	-a	-0.3967	2.1276	1.1326	320.6	198.8	53.3	16N	81W
0994 Jul 25	10:46:37	1590	55	-12436	93	T	-t	0.4086	2.1144	1.1023	334.8	205.1	49.0	18S	154W
0995 Jan 19	15:56:04	1587	54	-12430	98	T	p-	0.3158	2.3056	1.2520	349.2	214.6	73.7	19N	131E
0995 Jul 14	23:25:04	1585	54	-12424	103	T	a-	-0.3608	2.1759	1.2158	315.8	201.1	66.0	21S	16E
0996 Jan 08	18:21:36	1582	54	-12418	108	Nx	t-	1.0377	1.0042	-0.0953	284.9	-	-	22N	94E
0996 Jun 04	09:31:19	1580	54	-12413	75	N	-a	1.4143	0.2368	-0.7112	128.3	-	-	22S	137W
0996 Jul 03	16:14:04	1579	54	-12412	113	N	a-	-1.0789	0.8486	-0.0925	226.5	-	-	24S	124E
0996 Nov 27	23:27:53	1577	54	-12407	80	N	-t	-1.3084	0.4952	-0.5798	204.1	-	-	21N	13E

0997 May 25	00:01:15	1574	54	-12401	85	P	-a	0.7145	1.5427	0.5512	301.1	157.1	-	21S	5E
0997 Nov 17	06:41:00	1572	54	-12395	90	P	-a	-0.5613	1.8363	0.8199	316.6	181.9	-	20N	97W
0998 May 14	07:54:04	1569	54	-12389	95	T-	pp	-0.0502	2.7893	1.7428	363.2	231.1	104.7	20S	113W
0998 Nov 06	20:16:36	1566	54	-12383	100	T+	p-	0.1380	2.5914	1.6180	320.3	209.5	94.2	18N	59E
0999 May 03	09:24:51	1563	54	-12377	105	P	t-	-0.8207	1.3890	0.3157	320.7	132.9	-	18S	136W
0999 Oct 27	12:08:08	1561	54	-12371	110	P	a-	0.8104	1.3573	0.3844	274.5	128.6	-	15N	180W
1000 Mar 22	21:27:48	1559	54	-12366	77	N	-t	1.2554	0.5709	-0.4617	211.1	-	-	2S	46E
1000 Apr 21	10:47:29	1558	54	-12365	115	Nb	t-	-1.5354	0.0666	-0.9847	77.8	-	-	15S	157W
1000 Sep 16	12:44:52	1556	54	-12360	82	N	-a	-1.2220	0.6338	-0.4018	220.9	-	-	1S	174E
1000 Oct 16	01:35:33	1555	54	-12359	120	N	a-	1.5463	0.0277	-0.9861	47.2	-	-	12N	22W

2ND MILLENNIUM CE

In the 2nd millennium CE the total number of lunar eclipses was 2 431 lunar eclipses: 885 penumbral lunar eclipses, 864 partial lunar eclipses, 682 total lunar eclipses (423 central total lunar eclipses, 259 non-central total lunar eclipses).

11TH CENTURY CE

In the 11th century CE the total number of lunar eclipses was 246 lunar eclipses: 87 penumbral lunar eclipses, 97 partial lunar eclipses, 62 total lunar eclipses (48 central total lunar eclipses, 14 non-central total lunar eclipses).

	CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
	DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
		GREATEST		S								m	m	m	°	°
	ECLIPSE															
1001	Mar 12	08:16:11	1553	54	-12354	87	P	-a	0.4728	1.9811	0.9996	313.7	191.1	-	2N	115W
1001	Sep 05	16:30:27	1550	54	-12348	92	P	-t	-0.5265	1.9313	0.8533	352.0	198.7	-	5S	118E
1002	Mar 01	23:51:48	1548	54	-12342	97	T-	p-	-0.2397	2.3971	1.4389	314.7	205.1	85.4	5N	11E
1002	Aug 25	16:30:25	1545	53	-12336	102	T+	pp	0.2052	2.5198	1.4438	370.5	229.8	94.0	9S	119E
1003	Feb 19	15:44:29	1542	53	-12330	107	P	a-	-0.9447	1.1145	0.1347	259.2	79.9	-	8N	134E
1003	Aug 14	20:11:52	1540	53	-12324	112	P	h-	0.9341	1.1588	0.1295	283.4	83.4	-	12S	64E
1004	Jan 10	12:03:52	1538	53	-12319	79	N	-h	1.1574	0.7702	-0.3010	247.2	-	-	22N	171W
1004	Jul 04	23:26:34	1535	53	-12313	84	P	-a	-0.9379	1.1117	0.1621	254.8	86.5	-	23S	16E
1004	Dec 29	12:47:06	1532	53	-12307	89	P	-t	0.4980	1.9974	0.8921	360.1	202.9	-	23N	177E
1005	Jun 24	16:38:36	1530	53	-12301	94	T-	-p	-0.2010	2.4606	1.5171	315.7	208.1	90.6	24S	117E
1005	Dec 18	12:19:38	1527	53	-12295	99	T-	p-	-0.1856	2.5611	1.4744	367.7	227.4	94.5	23N	178W
1006	Jun 14	08:06:19	1524	53	-12289	104	P	a-	0.5630	1.8144	0.8353	311.0	182.5	-	23S	116W
1006	Dec 07	17:43:35	1522	53	-12283	109	P	a-	-0.8596	1.2967	0.2650	288.7	114.4	-	22N	100E
1007	May 05	04:20:53	1520	53	-12278	76	N	-t	-1.3951	0.3282	-0.7313	170.9	-	-	19S	60W
1007	Jun 03	17:38:16	1519	53	-12277	114	N	t-	1.3863	0.3313	-0.7025	167.0	-	-	22S	101E
1007	Oct 28	19:30:55	1517	53	-12272	81	N	-a	1.1928	0.6528	-0.3144	203.8	-	-	16N	69E
1007	Nov 27	06:04:26	1516	53	-12271	119	N	a-	-1.4773	0.1385	-0.8439	99.9	-	-	21N	87W
1008	Apr 23	04:57:41	1514	53	-12266	86	P	-t	-0.6646	1.6755	0.6022	339.8	175.2	-	15S	69W
1008	Oct 17	11:14:47	1512	53	-12260	91	P	-a	0.5357	1.8650	0.8850	305.6	181.6	-	12N	166W
1009	Apr 12	07:33:25	1509	53	-12254	96	T+	pp	0.1011	2.6923	1.6528	357.2	227.5	101.7	11S	107W
1009	Oct 06	23:17:07	1506	53	-12248	101	T-	pp	-0.1708	2.5587	1.5307	345.2	219.7	94.7	7N	14E
1010	Apr 01	17:04:18	1504	52	-12242	106	P	a-	0.8353	1.3188	0.3318	281.3	124.2	-	6S	111E
1010	Sep 26	04:21:42	1501	52	-12236	111	P	t-	-0.9231	1.2029	0.1261	300.7	85.2	-	2N	61W
1011	Feb 20	23:31:05	1499	52	-12231	78	N	-a	-1.0827	0.8519	-0.1095	227.9	-	-	8N	17E
1011	Mar 22	08:13:03	1499	52	-12230	116	N	a-	1.5000	0.0829	-0.8720	76.6	-	-	1S	115W
1011	Aug 16	12:13:44	1496	52	-12225	83	N	-t	1.2709	0.5585	-0.5058	218.1	-	-	11S	177W
1012	Feb 10	14:33:55	1494	52	-12219	88	T	-a	-0.4152	2.0936	1.0985	320.3	197.6	46.5	12N	152E
1012	Aug 04	17:58:10	1491	52	-12213	93	P	-t	0.4752	1.9915	0.9807	329.2	197.3	-	15S	98E
1013	Jan 30	00:06:20	1489	52	-12207	98	T	p-	0.3024	2.3305	1.2762	350.8	216.2	76.7	16N	9E
1013	Jul 25	06:54:08	1486	52	-12201	103	T	p-	-0.2917	2.3023	1.3428	318.1	205.5	79.5	19S	96W
1014	Jan 19	02:16:43	1483	52	-12195	108	Nx	t-	1.0256	1.0260	-0.0727	287.6	-	-	20N	24W
1014	Jun 15	16:55:13	1481	52	-12190	75	Ne	-a	1.4888	0.1010	-0.8487	85.0	-	-	22S	112E
1014	Jul 14	23:45:38	1481	52	-12189	113	P	a-	-1.0102	0.9754	0.0328	239.8	39.3	-	22S	11E
1014	Dec 09	07:43:41	1479	52	-12184	80	N	-t	-1.3102	0.4908	-0.5820	202.7	-	-	22N	110W
1015	Jun 05	07:07:24	1476	52	-12178	85	P	-a	0.7935	1.3993	0.4049	292.8	138.2	-	22S	101W

1015	Nov 28	15:16:56	1474	52	-12172	90	P	-a	-0.5651	1.8285	0.8140	315.2	180.9	-	22N	135E
1016	May 24	14:33:56	1471	52	-12166	95	T+	pp	0.0319	2.8236	1.7756	364.5	231.9	105.2	22S	146E
1016	Nov 17	05:02:46	1468	52	-12160	100	T+	p-	0.1299	2.6065	1.6326	320.1	209.5	94.6	21N	73W
1017	May 13	15:53:16	1466	52	-12154	105	P	t-	-0.7378	1.5402	0.4688	331.6	158.2	-	20S	126E
1017	Nov 06	20:48:19	1463	51	-12148	110	P	a-	0.7999	1.3783	0.4020	276.5	131.3	-	19N	50E
1018	Apr 03	04:50:01	1461	51	-12143	77	N	-t	1.3052	0.4764	-0.5499	193.7	-	-	6S	65W
1018	May 02	17:36:45	1461	51	-12142	115	N	t-	-1.4602	0.2021	-0.8441	133.4	-	-	18S	100E
1018	Sep 27	20:28:55	1459	51	-12137	82	N	-a	-1.2613	0.5649	-0.4771	210.9	-	-	3N	57E
1018	Oct 27	09:53:48	1458	51	-12136	120	N	a-	1.5342	0.0527	-0.9666	65.2	-	-	16N	147W
1019	Mar 23	16:10:16	1456	51	-12131	87	P	-a	0.5161	1.8989	0.9230	309.3	185.8	-	3S	125E
1019	Sep 16	23:43:08	1454	51	-12125	92	P	-t	-0.5759	1.8431	0.7602	348.8	190.9	-	1S	9E
1020	Mar 12	08:04:32	1451	51	-12119	97	T-	p-	-0.2031	2.4627	1.5076	315.5	206.9	89.5	1N	113W
1020	Sep 04	23:33:19	1448	51	-12113	102	T+	pp	0.1471	2.6272	1.5495	371.7	231.8	99.7	5S	12E
1021	Mar 01	23:59:18	1446	51	-12107	107	P	a-	-0.9176	1.1639	0.1847	264.1	93.1	-	4N	9E
1021	Aug 25	03:30:38	1443	51	-12101	112	P	h-	0.8728	1.2711	0.2422	292.2	111.9	-	8S	47W
1022	Jan 20	20:12:02	1441	51	-12096	79	N	-h	1.1715	0.7447	-0.3272	244.4	-	-	20N	67E
1022	Jul 16	06:55:18	1439	51	-12090	84	P	-a	-1.0059	0.9868	0.0375	242.9	42.3	-	22S	96W
1022	Aug 14	14:51:34	1438	51	-12089	122	Nb	a-	1.5453	0.0088	-0.9638	25.8	-	-	11S	143E
1023	Jan 09	20:45:30	1436	51	-12084	89	P	-t	0.5078	1.9788	0.8746	359.2	201.6	-	22N	58E
1023	Jul 06	00:06:19	1434	51	-12078	94	T	-p	-0.2741	2.3275	1.3821	313.8	204.7	82.0	23S	5E
1023	Dec 29	20:29:57	1431	51	-12072	99	T-	p-	-0.1794	2.5710	1.4872	366.7	227.3	95.1	23N	60E
1024	Jun 24	15:16:38	1429	51	-12066	104	P	a-	0.4886	1.9527	0.9701	318.2	192.6	-	23S	137E
1024	Dec 18	02:17:56	1426	51	-12060	109	P	a-	-0.8550	1.3036	0.2749	288.2	116.0	-	23N	28W
1025	May 15	10:57:30	1424	51	-12055	76	N	-t	-1.4754	0.1811	-0.8789	128.9	-	-	21S	160W
1025	Jun 14	00:19:50	1424	51	-12054	114	N	t-	1.3096	0.4736	-0.5632	197.8	-	-	22S	1E
1025	Nov 08	04:13:48	1422	50	-12049	81	N	-a	1.2025	0.6357	-0.3329	201.4	-	-	19N	61W
1025	Dec 07	14:53:51	1421	50	-12048	119	N	a-	-1.4720	0.1476	-0.8336	102.9	-	-	22N	142E
1026	May 04	11:34:06	1419	50	-12043	86	P	-t	-0.7406	1.5345	0.4644	330.2	157.1	-	18S	169W
1026	Oct 28	19:46:07	1417	50	-12037	91	P	-a	0.5522	1.8368	0.8525	305.3	179.5	-	16N	65E
1027	Apr 23	14:36:54	1414	50	-12031	96	T+	pp	0.0345	2.8116	1.7778	356.1	227.9	103.9	14S	146E
1027	Oct 18	07:22:19	1412	50	-12025	101	T-	pp	-0.1486	2.6024	1.5684	347.4	221.0	96.6	11N	108W
1028	Apr 12	00:40:11	1409	50	-12019	106	P	a-	0.7776	1.4217	0.4404	287.4	140.4	-	10S	4W
1028	Oct 06	11:54:36	1407	50	-12013	111	P	t-	-0.8913	1.2641	0.1820	307.2	101.7	-	7N	176W
1029	Mar 03	07:49:49	1404	50	-12008	78	N	-a	-1.1137	0.7939	-0.1653	221.4	-	-	4N	109W
1029	Apr 01	16:09:17	1404	50	-12007	116	N	a-	1.4524	0.1685	-0.7829	108.2	-	-	5S	124E
1029	Aug 26	19:15:39	1402	50	-12002	83	N	-t	1.3273	0.4555	-0.6097	198.5	-	-	7S	76E
1030	Feb 20	22:49:27	1400	50	-11996	88	T	-a	-0.4416	2.0452	1.0502	319.6	195.5	33.8	8N	27E
1030	Aug 16	01:18:54	1397	50	-11990	93	P	-h	0.5349	1.8817	0.8716	323.5	189.0	-	12S	14W
1031	Feb 10	08:07:45	1395	50	-11984	98	T	p-	0.2829	2.3665	1.3119	352.7	218.2	80.6	13N	112W

1031	Aug 05	14:28:52	1392	50	-11978	103	T-	p-	-0.2270	2.4209	1.4615	319.7	208.6	88.0	16S	150E
1032	Jan 30	10:06:21	1390	50	-11972	108	Nx	t-	1.0093	1.0551	-0.0422	290.9	-	-	17N	142W
1032	Jul 25	07:19:42	1387	50	-11966	113	P	a-	-0.9440	1.0981	0.1533	251.3	83.6	-	19S	103W
1032	Dec 19	16:02:00	1385	50	-11961	80	N	-t	-1.3107	0.4884	-0.5816	201.6	-	-	22N	126E
1033	Jun 15	14:08:36	1383	49	-11955	85	P	-a	0.8753	1.2508	0.2531	282.8	112.1	-	23S	154E
1033	Dec 08	23:57:04	1380	49	-11949	90	P	-a	-0.5660	1.8257	0.8134	314.0	180.4	-	23N	6E
1034	Jun 04	21:09:28	1378	49	-11943	95	T+	pp	0.1167	2.6690	1.6190	364.7	230.9	102.1	23S	48E
1034	Nov 28	13:52:27	1375	49	-11937	100	T+	p-	0.1247	2.6160	1.6421	319.9	209.4	94.8	22N	156E
1035	May 24	22:19:44	1373	49	-11931	105	P	t-	-0.6531	1.6948	0.6250	341.2	178.1	-	22S	29E
1035	Nov 18	05:32:34	1370	49	-11925	110	P	a-	0.7935	1.3916	0.4123	278.0	133.0	-	21N	81W
1036	Apr 13	12:07:41	1368	49	-11920	77	N	-t	1.3593	0.3741	-0.6460	172.5	-	-	10S	176W
1036	May 13	00:23:25	1368	49	-11919	115	N	t-	-1.3816	0.3439	-0.6974	171.1	-	-	21S	2W
1036	Oct 08	04:18:41	1366	49	-11914	82	N	-a	-1.2951	0.5060	-0.5423	201.6	-	-	7N	62W
1036	Nov 06	18:16:24	1366	49	-11913	120	N	a-	1.5261	0.0701	-0.9543	75.4	-	-	19N	87E
1037	Apr 02	23:58:24	1364	49	-11908	87	P	-a	0.5648	1.8068	0.8361	304.2	179.2	-	7S	7E
1037	Sep 27	07:03:59	1361	49	-11902	92	P	-t	-0.6185	1.7674	0.6797	345.7	183.2	-	3N	103W
1038	Mar 23	16:08:29	1359	49	-11896	97	T-	p-	-0.1591	2.5421	1.5897	316.3	208.6	93.3	3S	125E
1038	Sep 16	06:47:14	1356	49	-11890	102	T+	pp	0.0975	2.7191	1.6397	372.3	232.9	102.8	1S	98W
1039	Mar 13	08:04:43	1354	49	-11884	107	P	a-	-0.8832	1.2267	0.2481	269.8	107.2	-	0N	114W
1039	Sep 05	10:59:08	1352	49	-11878	112	P	a-	0.8184	1.3707	0.3422	299.0	130.6	-	4S	160W
1040	Feb 01	04:12:16	1349	49	-11873	79	N	-h	1.1915	0.7082	-0.3639	239.8	-	-	17N	53W
1040	Jul 26	14:28:54	1347	49	-11867	84	N	-a	-1.0703	0.8687	-0.0808	230.4	-	-	19S	150E
1040	Aug 24	22:35:30	1347	49	-11866	122	N	a-	1.4886	0.1129	-0.8598	91.3	-	-	8S	26E
1041	Jan 20	04:37:43	1345	49	-11861	89	P	-t	0.5225	1.9508	0.8485	357.9	199.6	-	19N	60W
1041	Jul 16	07:35:20	1342	48	-11855	94	T	-p	-0.3458	2.1973	1.2492	311.5	200.2	69.4	21S	107W
1042	Jan 09	04:37:56	1340	48	-11849	99	T-	p-	-0.1707	2.5852	1.5052	365.7	227.3	95.9	21N	61W
1042	Jul 05	22:26:32	1338	48	-11843	104	T	a-	0.4145	2.0907	1.1038	324.5	201.0	48.5	22S	30E
1042	Dec 29	10:51:39	1335	48	-11837	109	P	a-	-0.8491	1.3125	0.2876	287.8	118.1	-	22N	156W
1043	May 26	17:28:44	1333	48	-11832	76	Ne	-t	-1.5591	0.0280	-1.0327	51.5	-	-	23S	102E
1043	Jun 25	06:59:52	1333	48	-11831	114	N	t-	1.2319	0.6180	-0.4223	223.6	-	-	22S	99W
1043	Nov 19	13:02:11	1331	48	-11826	81	N	-a	1.2084	0.6256	-0.3443	200.0	-	-	22N	167E
1043	Dec 18	23:45:16	1330	48	-11825	119	N	a-	-1.4680	0.1543	-0.8254	105.0	-	-	22N	10E
1044	May 14	18:04:34	1328	48	-11820	86	P	-t	-0.8213	1.3849	0.3178	318.5	132.8	-	21S	93E
1044	Nov 08	04:23:12	1326	48	-11814	91	P	-a	0.5636	1.8179	0.8296	305.4	178.1	-	19N	64W
1045	May 03	21:35:01	1324	48	-11808	96	T-	pp	-0.0375	2.8034	1.7751	354.3	227.4	103.8	17S	40E
1045	Oct 28	15:33:46	1321	48	-11802	101	T-	pp	-0.1326	2.6347	1.5950	349.4	222.0	97.7	15N	128E
1046	Apr 23	08:10:32	1319	48	-11796	106	P	a-	0.7146	1.5346	0.5586	293.4	154.8	-	14S	118W
1046	Oct 17	19:35:22	1317	48	-11790	111	P	t-	-0.8661	1.3127	0.2257	312.3	112.7	-	11N	68E
1047	Mar 14	16:01:56	1315	48	-11785	78	N	-a	-1.1500	0.7262	-0.2309	213.3	-	-	1S	127E
1047	Apr 13	00:00:16	1314	48	-11784	116	N	a-	1.4006	0.2620	-0.6862	133.6	-	-	9S	5E

1047	Sep 07	02:25:48	1312	48	-11779	83	N	-t	1.3774	0.3640	-0.7020	178.6	-	-	3S	32W
1047	Oct 06	19:05:25	1312	48	-11778	121	N	t-	-1.5574	0.0466	-1.0450	67.2	-	-	6N	76E
1048	Mar 03	06:58:08	1310	48	-11773	88	P	-a	-0.4730	1.9874	0.9925	318.4	192.6	-	4N	96W
1048	Aug 26	08:47:35	1308	48	-11767	93	P	-a	0.5886	1.7828	0.7733	317.8	180.5	-	8S	127W
1049	Feb 20	16:00:03	1305	48	-11761	98	T+	pp	0.2565	2.4149	1.3603	354.8	220.5	85.3	9N	129E
1049	Aug 15	22:10:27	1303	47	-11755	103	T-	p-	-0.1675	2.5303	1.5705	320.7	210.6	93.5	12S	33E
1050	Feb 09	17:47:18	1300	47	-11749	108	P	t-	0.9862	1.0965	0.0012	295.4	8.6	-	13N	103E
1050	Aug 05	14:59:46	1298	47	-11743	113	P	a-	-0.8827	1.2119	0.2644	261.0	108.2	-	16S	142E
1050	Dec 31	00:18:03	1296	47	-11738	80	N	-t	-1.3134	0.4816	-0.5848	199.6	-	-	21N	3E
1051	Jun 26	21:10:26	1294	47	-11732	85	P	-a	0.9553	1.1060	0.1043	271.4	73.8	-	22S	48E
1051	Dec 20	08:37:41	1292	47	-11726	90	P	-a	-0.5669	1.8225	0.8131	312.8	179.9	-	23N	123W
1052	Jun 15	03:41:38	1289	47	-11720	95	T+	pp	0.2034	2.5112	1.4588	363.8	228.1	94.6	23S	50W
1052	Dec 08	22:44:29	1287	47	-11714	100	T+	p-	0.1213	2.6220	1.6485	319.6	209.4	94.9	24N	24E
1053	Jun 04	04:42:12	1285	47	-11708	105	P	t-	-0.5651	1.8556	0.7871	349.6	194.3	-	24S	66W
1053	Nov 28	14:20:14	1282	47	-11702	110	P	a-	0.7902	1.3990	0.4171	279.1	133.9	-	23N	148E
1054	Apr 24	19:18:21	1280	47	-11697	77	N	-t	1.4195	0.2606	-0.7536	144.8	-	-	14S	75E
1054	May 24	07:06:44	1280	47	-11696	115	N	t-	-1.2990	0.4932	-0.5439	201.3	-	-	23S	103W
1054	Oct 19	12:16:52	1278	47	-11691	82	N	-a	-1.3213	0.4609	-0.5932	194.1	-	-	11N	178E
1054	Nov 18	02:44:22	1278	47	-11690	120	N	a-	1.5233	0.0778	-0.9513	79.7	-	-	22N	39W
1055	Apr 14	07:39:59	1276	47	-11685	87	P	-a	0.6197	1.7036	0.7379	298.2	170.8	-	11S	110W
1055	Oct 08	14:32:35	1273	47	-11679	92	P	-t	-0.6542	1.7040	0.6119	342.9	176.0	-	8N	144E
1056	Apr 03	00:05:42	1271	47	-11673	97	T-	p-	-0.1094	2.6319	1.6821	317.1	210.1	96.5	8S	4E
1056	Sep 26	14:10:39	1269	47	-11667	102	T+	pp	0.0552	2.7977	1.7166	372.3	233.2	104.3	4N	150E
1057	Mar 23	16:00:54	1267	47	-11661	107	P	a-	-0.8420	1.3021	0.3239	276.3	121.5	-	4S	126E
1057	Sep 15	18:37:37	1264	46	-11655	112	P	a-	0.7713	1.4571	0.4286	304.2	143.8	-	0N	84E
1058	Feb 11	12:04:54	1262	46	-11650	79	N	-t	1.2166	0.6619	-0.4100	233.4	-	-	13N	172W
1058	Aug 06	22:08:13	1260	46	-11644	84	N	-a	-1.1301	0.7593	-0.1910	217.6	-	-	16S	35E
1058	Sep 05	06:27:48	1260	46	-11643	122	N	a-	1.4382	0.2056	-0.7675	121.9	-	-	4S	93W
1059	Jan 31	12:24:25	1258	46	-11638	89	P	-t	0.5417	1.9145	0.8146	355.9	196.7	-	16N	177W
1059	Jul 27	15:08:40	1256	46	-11632	94	T	-a	-0.4135	2.0747	1.1235	308.7	194.7	50.9	18S	139E
1060	Jan 20	12:43:21	1253	46	-11626	99	T-	pp	-0.1591	2.6042	1.5286	364.6	227.4	97.0	19N	178E
1060	Jul 16	05:36:55	1251	46	-11620	104	T	p-	0.3418	2.2266	1.2351	330.1	207.9	70.1	20S	78W
1061	Jan 08	19:24:01	1249	46	-11614	109	P	a-	-0.8415	1.3245	0.3037	287.6	120.7	-	20N	77E
1061	Jul 05	13:39:50	1246	46	-11608	114	N	t-	1.1543	0.7623	-0.2818	245.8	-	-	21S	161E
1061	Nov 29	21:52:52	1245	46	-11603	81	N	-a	1.2125	0.6184	-0.3522	199.0	-	-	24N	35E
1061	Dec 29	08:34:32	1244	46	-11602	119	N	a-	-1.4622	0.1637	-0.8139	107.8	-	-	21N	122W
1062	May 26	00:32:43	1242	46	-11597	86	P	-t	-0.9039	1.2320	0.1675	305.0	98.4	-	23S	4W
1062	Nov 19	13:04:02	1240	46	-11591	91	P	-a	0.5717	1.8049	0.8130	305.7	177.2	-	21N	166E
1063	May 15	04:30:56	1238	46	-11585	96	T-	pp	-0.1122	2.6638	1.6406	351.8	225.5	100.9	20S	64W
1063	Nov 08	23:49:14	1236	46	-11579	101	T-	pp	-0.1206	2.6594	1.6145	351.2	222.8	98.5	18N	4E

1064	May 03	15:36:29	1233	46	-11573	106	P	a-	0.6471	1.6561	0.6850	299.0	167.5	-	17S	130E
1064	Oct 28	03:23:04	1231	46	-11567	111	P	t-	-0.8470	1.3501	0.2586	316.3	120.3	-	14N	49W
1065	Mar 25	00:03:37	1229	46	-11562	78	N	-a	-1.1947	0.6432	-0.3119	202.5	-	-	5S	5E
1065	Apr 23	07:42:33	1229	46	-11561	116	N	a-	1.3417	0.3687	-0.5768	156.8	-	-	13S	111W
1065	Sep 17	09:47:17	1227	46	-11556	83	N	-t	1.4189	0.2883	-0.7786	159.8	-	-	1N	144W
1065	Oct 17	02:42:46	1227	46	-11555	121	N	t-	-1.5293	0.0992	-0.9944	97.5	-	-	10N	39W
1066	Mar 14	14:55:42	1225	45	-11550	88	P	-a	-0.5131	1.9139	0.9191	316.5	188.4	-	0S	143E
1066	Sep 06	16:26:27	1223	45	-11544	93	P	-a	0.6348	1.6978	0.6886	312.4	172.2	-	4S	117E
1067	Mar 03	23:42:03	1220	45	-11538	98	T+	pp	0.2224	2.4773	1.4231	357.0	223.1	90.5	5N	12E
1067	Aug 27	05:59:52	1218	45	-11532	103	T-	p-	-0.1142	2.6285	1.6679	321.2	211.7	96.7	8S	85W
1068	Feb 21	01:20:52	1216	45	-11526	108	P	t-	0.9573	1.1483	0.0555	300.6	57.8	-	10N	11W
1068	Aug 15	22:43:34	1214	45	-11520	113	P	a-	-0.8249	1.3196	0.3688	269.5	125.9	-	13S	25E
1069	Jan 10	08:34:12	1212	45	-11515	80	N	-t	-1.3166	0.4735	-0.5886	197.4	-	-	20N	121W
1069	Jul 07	04:10:38	1210	45	-11509	85	N	-a	1.0352	0.9617	-0.0444	258.2	-	-	21S	57W
1069	Dec 30	17:18:15	1207	45	-11503	90	P	-a	-0.5684	1.8180	0.8120	311.5	179.4	-	22N	107E
1070	Jun 26	10:13:08	1205	45	-11497	95	T	-t	0.2897	2.3543	1.2991	361.8	223.4	81.4	23S	148W
1070	Dec 20	07:37:29	1203	45	-11491	100	T+	p-	0.1191	2.6257	1.6530	319.3	209.3	95.0	24N	109W
1071	Jun 15	11:05:17	1201	45	-11485	105	P	t-	-0.4771	2.0166	0.9490	356.6	207.1	-	24S	162W
1071	Dec 09	23:08:57	1199	45	-11479	110	P	a-	0.7884	1.4034	0.4194	280.0	134.4	-	24N	17E
1072	May 05	02:26:46	1197	45	-11474	77	N	-t	1.4820	0.1431	-0.8655	107.9	-	-	17S	32W
1072	Jun 03	13:50:33	1196	45	-11473	115	N	t-	-1.2158	0.6439	-0.3892	225.8	-	-	24S	156E
1072	Oct 29	20:20:00	1195	45	-11468	82	N	-a	-1.3427	0.4245	-0.6352	187.7	-	-	15N	57E
1072	Nov 28	11:14:08	1194	45	-11467	120	N	a-	1.5224	0.0814	-0.9518	81.8	-	-	24N	166W
1073	Apr 24	15:15:38	1192	45	-11462	87	P	-a	0.6800	1.5907	0.6296	291.3	160.2	-	14S	135E
1073	Oct 18	22:09:39	1190	45	-11456	92	P	-t	-0.6827	1.6539	0.5578	340.5	169.7	-	12N	29E
1074	Apr 14	07:55:28	1188	44	-11450	97	T-	pp	-0.0537	2.7330	1.7854	317.6	211.1	98.6	11S	114W
1074	Oct 07	21:43:55	1186	44	-11444	102	T+	pp	0.0206	2.8617	1.7794	372.0	233.1	104.7	8N	36E
1075	Apr 03	23:48:04	1184	44	-11438	107	P	a-	-0.7941	1.3899	0.4118	283.4	135.6	-	8S	8E
1075	Sep 27	02:26:24	1182	44	-11432	112	P	a-	0.7321	1.5290	0.5006	308.0	153.2	-	4N	35W
1076	Feb 22	19:47:40	1180	44	-11427	79	N	-t	1.2491	0.6020	-0.4692	224.4	-	-	9N	72E
1076	Aug 17	05:53:23	1178	44	-11421	84	N	-a	-1.1854	0.6585	-0.2931	204.5	-	-	13S	83W
1076	Sep 15	14:28:32	1177	44	-11420	122	N	a-	1.3942	0.2867	-0.6871	142.6	-	-	1N	145E
1077	Feb 10	20:03:08	1175	44	-11415	89	P	-t	0.5673	1.8659	0.7691	353.2	192.7	-	13N	68E
1077	Aug 06	22:45:56	1173	44	-11409	94	T	-a	-0.4775	1.9591	1.0042	305.5	188.5	9.7	15S	24E
1078	Jan 30	20:42:15	1171	44	-11403	99	T-	pp	-0.1415	2.6341	1.5634	363.5	227.6	98.5	16N	58E
1078	Jul 27	12:50:18	1169	44	-11397	104	T+	p-	0.2722	2.3569	1.3601	334.8	213.2	83.3	18S	173E
1079	Jan 20	03:53:19	1167	44	-11391	109	P	a-	-0.8305	1.3423	0.3263	287.8	124.4	-	18N	50W
1079	Jul 16	20:20:28	1165	44	-11385	114	N	t-	1.0776	0.9052	-0.1433	265.0	-	-	20S	61E
1079	Dec 11	06:45:57	1163	44	-11380	81	N	-a	1.2150	0.6141	-0.3569	198.4	-	-	25N	97W
1080	Jan 09	17:22:44	1163	44	-11379	119	N	a-	-1.4556	0.1747	-0.8005	111.1	-	-	20N	107E

1080 Jun 05	06:58:34	1161	44	-11374	86	P	-t	-0.9885	1.0756	0.0134	289.2	28.4	-	24S	100W
1080 Nov 29	21:48:21	1159	44	-11368	91	P	-a	0.5763	1.7982	0.8030	306.4	176.8	-	23N	36E
1081 May 25	11:23:28	1157	44	-11362	96	T-	pp	-0.1905	2.5178	1.4993	348.3	222.2	94.7	22S	167W
1081 Nov 19	08:09:46	1154	44	-11356	101	T-	pp	-0.1136	2.6746	1.6250	352.8	223.5	99.0	21N	120W
1082 May 14	22:59:35	1152	44	-11350	106	P	a-	0.5764	1.7837	0.8168	304.2	178.5	-	20S	19E
1082 Nov 08	11:16:00	1150	43	-11344	111	P	t-	-0.8324	1.3787	0.2834	319.4	125.6	-	18N	168W
1083 Apr 05	07:59:25	1148	43	-11339	78	N	-a	-1.2441	0.5518	-0.4017	189.5	-	-	9S	115W
1083 May 04	15:21:42	1148	43	-11338	116	N	a-	1.2800	0.4808	-0.4626	177.0	-	-	16S	133E
1083 Sep 28	17:18:10	1146	43	-11333	83	N	-t	1.4534	0.2253	-0.8423	141.7	-	-	6N	102E
1083 Oct 28	10:27:29	1146	43	-11332	121	N	t-	-1.5064	0.1420	-0.9530	116.2	-	-	14N	156W
1084 Mar 24	22:45:29	1144	43	-11327	88	P	-a	-0.5588	1.8302	0.8353	313.8	182.8	-	5S	24E
1084 Sep 17	00:13:55	1142	43	-11321	93	P	-a	0.6746	1.6247	0.6157	307.4	164.3	-	1N	1W
1085 Mar 14	07:14:28	1140	43	-11315	98	T+	pp	0.1812	2.5527	1.4988	359.2	225.7	95.5	0N	102W
1085 Sep 06	13:57:36	1138	43	-11309	103	T-	p-	-0.0678	2.7143	1.7525	321.3	212.2	98.3	4S	154E
1086 Mar 03	08:43:40	1136	43	-11303	108	P	t-	0.9200	1.2155	0.1253	307.0	86.1	-	5N	123W
1086 Aug 27	06:35:34	1134	43	-11297	113	P	a-	-0.7743	1.4143	0.4599	276.4	138.8	-	9S	94W
1087 Jan 21	16:45:31	1132	43	-11292	80	N	-t	-1.3238	0.4580	-0.5993	193.6	-	-	17N	117E
1087 Jul 18	11:13:08	1130	43	-11286	85	N	-a	1.1119	0.8235	-0.1876	243.5	-	-	19S	163W
1087 Aug 16	21:27:40	1129	43	-11285	123	Nb	a-	-1.5360	0.0342	-0.9548	51.8	-	-	13S	44E
1088 Jan 11	01:55:57	1128	43	-11280	90	P	-a	-0.5727	1.8082	0.8061	310.0	178.5	-	20N	21W
1088 Jul 06	16:45:02	1126	43	-11274	95	T	-t	0.3746	2.2001	1.1417	358.6	216.7	59.3	22S	114E
1088 Dec 30	16:28:59	1124	43	-11268	100	T+	p-	0.1153	2.6320	1.6607	319.1	209.3	95.2	23N	119E
1089 Jun 25	17:27:40	1122	43	-11262	105	T	t-	-0.3881	2.1798	1.1126	362.3	217.1	53.8	24S	103E
1089 Dec 20	07:58:13	1119	43	-11256	110	P	a-	0.7875	1.4059	0.4202	280.8	134.7	-	24N	114W
1090 May 16	09:30:55	1118	43	-11251	77	Ne	-t	1.5484	0.0188	-0.9848	39.4	-	-	19S	139W
1090 Jun 14	20:34:30	1117	43	-11250	115	N	t-	-1.1312	0.7973	-0.2323	246.4	-	-	25S	56E
1090 Nov 10	04:28:50	1116	43	-11245	82	N	-a	-1.3586	0.3978	-0.6669	182.8	-	-	18N	66W
1090 Dec 09	19:45:23	1115	43	-11244	120	N	a-	1.5235	0.0812	-0.9555	82.0	-	-	25N	67E
1091 May 05	22:46:53	1114	42	-11239	87	P	-a	0.7444	1.4705	0.5134	283.2	147.1	-	17S	22E
1091 Oct 30	05:54:25	1112	42	-11233	92	P	-t	-0.7043	1.6160	0.5164	338.7	164.5	-	15N	88W
1092 Apr 24	15:38:13	1109	42	-11227	97	T+	pp	0.0079	2.8161	1.8703	317.8	211.6	99.3	15S	129E
1092 Oct 18	05:26:30	1107	42	-11221	102	T-	pp	-0.0069	2.8873	1.8039	371.5	232.7	104.6	12N	81W
1093 Apr 14	07:26:54	1105	42	-11215	107	P	a-	-0.7401	1.4891	0.5108	290.8	149.2	-	12S	108W
1093 Oct 07	10:24:58	1103	42	-11209	112	P	a-	0.6998	1.5882	0.5600	310.7	160.1	-	9N	155W
1094 Mar 05	03:20:47	1102	42	-11204	79	N	-t	1.2886	0.5291	-0.5414	212.3	-	-	5N	42W
1094 Apr 03	17:47:55	1101	42	-11203	117	Nb	t-	-1.5448	0.0415	-0.9943	60.2	-	-	9S	97E
1094 Aug 28	13:46:12	1100	42	-11198	84	N	-a	-1.2349	0.5685	-0.3848	191.6	-	-	9S	158E
1094 Sep 26	22:38:19	1099	42	-11197	122	N	a-	1.3569	0.3555	-0.6190	157.4	-	-	5N	22E
1095 Feb 22	03:35:05	1098	42	-11192	89	P	-t	0.5987	1.8066	0.7132	349.7	187.3	-	9N	45W
1095 Aug 18	06:27:59	1096	42	-11186	94	P	-a	-0.5372	1.8517	0.8926	302.1	181.5	-	12S	92W

1096 Feb 11	04:36:44	1093	42	-11180	99	T-	pp	-0.1193	2.6719	1.6067	362.4	227.8	100.1	12N	61W
1096 Aug 06	20:07:03	1091	42	-11174	104	T+	pp	0.2060	2.4811	1.4787	338.7	217.3	91.9	15S	64E
1097 Jan 30	12:17:22	1089	42	-11168	109	P	a-	-0.8145	1.3690	0.3580	288.6	129.3	-	15N	176W
1097 Jul 27	03:04:17	1087	42	-11162	114	Nx	t-	1.0038	1.0429	-0.0102	281.4	-	-	17S	41W
1097 Dec 21	15:38:32	1086	42	-11157	81	N	-a	1.2182	0.6082	-0.3628	197.6	-	-	25N	131E
1098 Jan 20	02:06:05	1085	42	-11156	119	N	a-	-1.4450	0.1928	-0.7796	116.3	-	-	17N	24W
1098 Jun 16	13:25:54	1084	42	-11151	86	N	-t	-1.0720	0.9214	-0.1389	271.5	-	-	25S	163E
1098 Dec 11	06:32:25	1082	42	-11145	91	P	-a	0.5808	1.7912	0.7933	306.9	176.4	-	24N	94W
1099 Jun 05	18:17:09	1080	42	-11139	96	T-	pp	-0.2690	2.3717	1.3573	344.1	217.5	84.5	23S	90E
1099 Nov 30	16:32:17	1078	41	-11133	101	T-	pp	-0.1086	2.6857	1.6321	354.4	224.1	99.4	23N	115E
1100 May 25	06:19:12	1076	41	-11127	106	P	a-	0.5018	1.9185	0.9555	308.9	188.0	-	22S	91W
1100 Nov 18	19:14:24	1074	41	-11121	111	P	t-	-0.8224	1.3987	0.3002	321.7	129.2	-	20N	73E

12TH CENTURY CE

In the 12th century CE the total number of lunar eclipses was 259 lunar eclipses: 98 penumbral lunar eclipses, 102 partial lunar eclipses, 59 total lunar eclipses (49 central total lunar eclipses, 10 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
ECLIPSE															
1101 Apr 15	15:46:04	1072	41	-11116	78	N	-a	-1.3010	0.4468	-0.5055	172.4	-	-	13S	127E
1101 May 14	22:54:37	1072	41	-11115	116	N	a-	1.2129	0.6031	-0.3386	195.8	-	-	19S	20E
1101 Oct 09	01:00:19	1070	41	-11110	83	N	-t	1.4795	0.1777	-0.8904	126.1	-	-	10N	14W
1101 Nov 07	18:20:49	1070	41	-11109	121	N	t-	-1.4897	0.1731	-0.9228	127.8	-	-	17N	86E
1102 Apr 05	06:24:10	1068	41	-11104	88	P	-a	-0.6129	1.7309	0.7358	310.1	175.1	-	9S	92W
1102 Sep 28	08:12:22	1066	41	-11098	93	P	-a	0.7063	1.5665	0.5576	303.0	157.3	-	5N	122W
1103 Mar 25	14:36:53	1064	41	-11092	98	T+	pp	0.1326	2.6417	1.5882	361.2	228.1	99.9	4S	146E
1103 Sep 17	22:02:54	1062	41	-11086	103	T-	pp	-0.0273	2.7893	1.8261	321.2	212.2	99.0	0N	32E

1104 Mar 13	15:58:50	1060	41	-11080	108	P	t-	0.8763	1.2940	0.2069	313.9	109.3	-	1N	127E
1104 Sep 06	14:33:26	1058	41	-11074	113	P	a-	-0.7289	1.4996	0.5413	282.4	148.9	-	5S	145E
1105 Feb 01	00:52:50	1056	41	-11069	80	N	-t	-1.3351	0.4345	-0.6174	188.2	-	-	14N	5W
1105 Mar 02	16:23:06	1056	41	-11068	118	Nb	t-	1.5584	0.0341	-1.0362	56.3	-	-	6N	122E
1105 Jul 28	18:17:08	1054	41	-11063	85	N	-h	1.1862	0.6898	-0.3267	226.9	-	-	16S	91E
1105 Aug 27	05:02:11	1054	41	-11062	123	N	h-	-1.4881	0.1251	-0.8699	98.6	-	-	9S	71W
1106 Jan 21	10:31:08	1053	41	-11057	90	P	-a	-0.5798	1.7930	0.7952	308.2	177.2	-	18N	150W
1106 Jul 17	23:19:28	1051	41	-11051	95	P	-t	0.4570	2.0507	0.9888	354.4	208.1	-	20S	16E
1107 Jan 11	01:17:53	1049	41	-11045	100	T+	p-	0.1092	2.6422	1.6725	318.9	209.4	95.5	21N	12W
1107 Jul 06	23:54:06	1047	41	-11039	105	T	t-	-0.3018	2.3380	1.2709	366.5	224.5	78.9	22S	7E
1107 Dec 31	16:45:51	1045	41	-11033	110	P	a-	0.7858	1.4096	0.4226	281.7	135.3	-	23N	115E
1108 Jun 25	03:20:23	1043	40	-11027	115	N	t-	-1.0470	0.9504	-0.0763	263.8	-	-	24S	45W
1108 Nov 20	12:41:04	1041	40	-11022	82	N	-a	-1.3711	0.3771	-0.6919	179.0	-	-	20N	172E
1108 Dec 20	04:15:56	1041	40	-11021	120	N	a-	1.5248	0.0803	-0.9594	81.8	-	-	25N	59W
1109 May 16	06:14:42	1039	40	-11016	87	P	-a	0.8119	1.3449	0.3913	274.1	130.5	-	20S	90W
1109 Nov 09	13:44:55	1037	40	-11010	92	P	-t	-0.7211	1.5866	0.4842	337.3	160.2	-	18N	155E
1110 May 05	23:15:32	1035	40	-11004	97	T+	pp	0.0739	2.6944	1.7497	317.6	211.2	98.3	18S	14E
1110 Oct 29	13:17:57	1033	40	-10998	102	T-	pp	-0.0276	2.8497	1.7658	370.7	232.1	104.2	16N	161E
1111 Apr 25	14:58:13	1031	40	-10992	107	P	a-	-0.6803	1.5990	0.6201	298.3	162.0	-	16S	138E
1111 Oct 18	18:32:02	1029	40	-10986	112	P	a-	0.6738	1.6357	0.6079	312.5	165.0	-	13N	82E
1112 Mar 15	10:43:32	1028	40	-10981	79	N	-t	1.3357	0.4421	-0.6273	196.0	-	-	1N	154W
1112 Apr 14	01:00:03	1028	40	-10980	117	N	t-	-1.4901	0.1422	-0.8941	110.7	-	-	13S	12W
1112 Sep 07	21:46:47	1026	40	-10975	84	N	-a	-1.2785	0.4896	-0.4658	179.1	-	-	5S	37E
1112 Oct 07	06:56:56	1026	40	-10974	122	N	a-	1.3264	0.4118	-0.5636	168.2	-	-	9N	104W
1113 Mar 04	10:56:11	1024	40	-10969	89	P	-t	0.6388	1.7310	0.6415	345.0	179.8	-	4N	157W
1113 Aug 28	14:16:46	1022	40	-10963	94	P	-a	-0.5908	1.7556	0.7920	298.7	174.2	-	8S	150E
1114 Feb 21	12:23:18	1020	40	-10957	99	T-	pp	-0.0900	2.7227	1.6634	361.2	228.1	101.7	8N	178W
1114 Aug 18	03:29:00	1018	40	-10951	104	T+	pp	0.1452	2.5958	1.5874	342.0	220.1	97.3	11S	48W
1115 Feb 10	20:35:57	1016	40	-10945	109	P	a-	-0.7935	1.4048	0.3993	289.9	135.4	-	11N	59E
1115 Aug 07	09:52:23	1014	40	-10939	114	P	t-	0.9339	1.1738	0.1157	295.5	81.4	-	14S	143W
1116 Jan 02	00:31:00	1013	40	-10934	81	N	-a	1.2216	0.6016	-0.3689	196.7	-	-	24N	1W
1116 Jan 31	10:45:53	1013	40	-10933	119	N	a-	-1.4316	0.2158	-0.7535	122.6	-	-	14N	154W
1116 Jun 26	19:52:54	1011	40	-10928	86	N	-t	-1.1559	0.7668	-0.2920	251.0	-	-	24S	67E
1116 Dec 21	15:17:48	1009	40	-10922	91	P	-a	0.5839	1.7867	0.7866	307.6	176.2	-	24N	136E
1117 Jun 16	01:10:55	1007	39	-10916	96	T	-p	-0.3484	2.2240	1.2134	338.9	211.1	68.5	24S	14W
1117 Dec 11	00:56:07	1005	39	-10910	101	T-	pp	-0.1055	2.6931	1.6362	355.8	224.7	99.7	23N	10W
1118 Jun 05	13:39:01	1003	39	-10904	106	T	a-	0.4267	2.0549	1.0949	312.8	195.7	45.5	23S	159E
1118 Nov 30	03:16:14	1002	39	-10898	111	P	t-	-0.8152	1.4132	0.3123	323.4	131.6	-	22N	47W
1119 Apr 26	23:27:56	1000	39	-10893	78	N	-a	-1.3613	0.3358	-0.6157	151.2	-	-	17S	11E
1119 May 26	06:25:52	1000	39	-10892	116	N	a-	1.1444	0.7282	-0.2124	212.4	-	-	21S	93W

1119	Oct 20	08:50:12	998	39	-10887	83	N	-t	1.5000	0.1402	-0.9282	112.1	-	-	14N	133W
1119	Nov 19	02:18:51	998	39	-10886	121	N	t-	-1.4761	0.1980	-0.8982	136.2	-	-	20N	33W
1120	Apr 15	13:55:55	996	39	-10881	88	P	-a	-0.6720	1.6229	0.6271	305.3	165.1	-	13S	154E
1120	Oct 08	16:19:38	994	39	-10875	93	P	-a	0.7314	1.5205	0.5116	299.2	151.3	-	9N	116E
1121	Apr 04	21:48:25	992	39	-10869	98	T+	pp	0.0759	2.7457	1.6923	363.1	230.1	103.3	8S	37E
1121	Sep 28	06:17:26	991	39	-10863	103	T+	pp	0.0057	2.8296	1.8649	320.9	211.9	98.9	4N	93W
1122	Mar 24	23:03:24	989	39	-10857	108	P	t-	0.8241	1.3883	0.3043	321.5	130.7	-	3S	20E
1122	Sep 17	22:39:14	987	39	-10851	113	P	a-	-0.6903	1.5724	0.6100	287.2	156.5	-	0S	23E
1123	Feb 12	08:53:02	985	39	-10846	80	N	-t	-1.3525	0.3996	-0.6465	180.3	-	-	10N	126W
1123	Mar 13	23:47:58	985	39	-10845	118	N	t-	1.5142	0.1123	-0.9522	101.1	-	-	2N	10E
1123	Aug 09	01:26:13	983	39	-10840	85	N	-h	1.2552	0.5661	-0.4562	209.1	-	-	13S	17W
1123	Sep 07	12:43:54	983	39	-10839	123	N	h-	-1.4465	0.2045	-0.7966	125.7	-	-	5S	172E
1124	Feb 01	19:00:44	982	39	-10834	90	P	-a	-0.5920	1.7682	0.7752	305.9	175.1	-	15N	83E
1124	Jul 28	05:56:10	980	39	-10828	95	P	-t	0.5366	1.9065	0.8407	349.3	197.5	-	17S	84W
1125	Jan 21	10:02:42	978	39	-10822	100	T+	p-	0.0999	2.6584	1.6907	318.7	209.6	96.0	18N	143W
1125	Jul 17	06:23:46	976	39	-10816	105	T-	pp	-0.2180	2.4919	1.4246	369.4	229.6	93.0	20S	91W
1126	Jan 11	01:29:51	974	39	-10810	110	P	a-	0.7819	1.4171	0.4295	282.8	136.6	-	22N	15W
1126	Jul 06	10:10:12	972	38	-10804	115	P	t-	-0.9649	1.0998	0.0756	278.2	64.4	-	23S	148W
1126	Dec 01	20:56:59	971	38	-10799	82	N	-h	-1.3795	0.3636	-0.7091	176.6	-	-	22N	48E
1126	Dec 31	12:45:15	971	38	-10798	120	N	h-	1.5263	0.0786	-0.9633	81.3	-	-	24N	175E
1127	May 27	13:39:47	969	38	-10793	87	P	-a	0.8822	1.2144	0.2638	263.7	109.0	-	21S	158E
1127	Nov 20	21:40:50	967	38	-10787	92	P	-t	-0.7332	1.5655	0.4609	336.2	157.0	-	21N	36E
1128	May 16	06:48:00	965	38	-10781	97	T+	-p	0.1438	2.5659	1.6218	316.8	209.9	95.0	20S	99W
1128	Nov 08	21:17:24	964	38	-10775	102	T-	pp	-0.0424	2.8225	1.7385	369.9	231.5	103.7	19N	41E
1129	May 05	22:21:35	962	38	-10769	107	P	a-	-0.6147	1.7199	0.7400	305.8	174.1	-	19S	27E
1129	Oct 29	02:48:17	960	38	-10763	112	P	a-	0.6545	1.6708	0.6436	313.5	168.3	-	16N	42W
1130	Mar 26	17:57:02	958	38	-10758	79	N	-t	1.3893	0.3433	-0.7251	174.7	-	-	4S	96E
1130	Apr 25	08:04:20	958	38	-10757	117	N	t-	-1.4296	0.2535	-0.7835	146.9	-	-	16S	119W
1130	Sep 19	05:54:48	957	38	-10752	84	N	-a	-1.3163	0.4213	-0.5362	167.2	-	-	0S	86W
1130	Oct 18	15:22:42	956	38	-10751	122	N	a-	1.3015	0.4580	-0.5182	176.3	-	-	13N	129E
1131	Mar 15	18:10:27	955	38	-10746	89	P	-t	0.6845	1.6451	0.5596	339.3	170.1	-	0N	94E
1131	Sep 08	22:12:01	953	38	-10740	94	P	-a	-0.6385	1.6705	0.7021	295.4	166.8	-	4S	30E
1132	Mar 03	20:03:44	951	38	-10734	99	T-	pp	-0.0548	2.7843	1.7311	359.9	228.3	103.0	4N	66E
1132	Aug 28	10:55:50	949	38	-10728	104	T+	pp	0.0891	2.7018	1.6872	344.7	222.1	100.6	7S	160W
1133	Feb 21	04:48:09	948	38	-10722	109	P	a-	-0.7664	1.4517	0.4519	291.9	142.5	-	7N	65W
1133	Aug 17	16:46:40	946	38	-10716	114	P	t-	0.8690	1.2954	0.2322	307.4	113.7	-	11S	112E
1134	Jan 12	09:18:51	944	38	-10711	81	N	-a	1.2293	0.5872	-0.3824	194.6	-	-	22N	132W
1134	Feb 10	19:17:53	944	38	-10710	119	N	a-	-1.4117	0.2506	-0.7154	131.5	-	-	11N	78E
1134	Jul 08	02:25:20	943	38	-10705	86	N	-t	-1.2358	0.6197	-0.4380	228.4	-	-	23S	31W
1135	Jan 02	00:00:10	941	38	-10699	91	P	-a	0.5894	1.7774	0.7756	308.1	175.7	-	23N	6E

1135 Jun 27	08:07:41	939	37	-10693	96	T	-t	-0.4264	2.0794	1.0718	333.0	203.3	41.5	24S	117W
1135 Dec 22	09:18:51	937	37	-10687	101	T-	pp	-0.1020	2.7010	1.6413	357.2	225.4	100.0	23N	135W
1136 Jun 15	20:58:20	935	37	-10681	106	T	a-	0.3501	2.1941	1.2367	315.9	201.9	68.6	23S	49E
1136 Dec 10	11:19:54	934	37	-10675	111	P	t-	-0.8097	1.4240	0.3215	324.7	133.5	-	23N	167W
1137 May 07	07:01:18	932	37	-10670	78	N	-a	-1.4282	0.2129	-0.7383	122.0	-	-	20S	103W
1137 Jun 05	13:52:55	932	37	-10669	116	N	a-	1.0724	0.8602	-0.0801	227.8	-	-	22S	155E
1137 Oct 30	16:50:39	930	37	-10664	83	N	-t	1.5129	0.1165	-0.9517	102.2	-	-	17N	107E
1137 Nov 29	10:23:13	930	37	-10663	121	N	t-	-1.4670	0.2146	-0.8811	141.3	-	-	21N	154W
1138 Apr 26	21:18:21	929	37	-10658	88	P	-a	-0.7379	1.5023	0.5056	299.1	151.6	-	16S	43E
1138 Oct 20	00:35:51	927	37	-10652	93	P	-a	0.7500	1.4862	0.4776	296.2	146.5	-	13N	9W
1139 Apr 16	04:51:06	925	37	-10646	98	T+	pp	0.0125	2.8619	1.8087	364.4	231.4	105.0	12S	69W
1139 Oct 09	14:39:51	923	37	-10640	103	T+	pp	0.0326	2.7811	1.8148	320.6	211.5	98.5	9N	140E
1140 Apr 04	05:59:38	922	37	-10634	108	P	t-	0.7648	1.4954	0.4147	329.3	150.1	-	8S	86W
1140 Sep 28	06:51:48	920	37	-10628	113	P	a-	-0.6577	1.6344	0.6677	291.3	162.4	-	4N	102W
1141 Feb 22	16:48:08	918	37	-10623	80	N	-t	-1.3748	0.3555	-0.6844	170.0	-	-	6N	115E
1141 Mar 24	07:06:08	918	37	-10622	118	N	t-	1.4634	0.2024	-0.8561	134.2	-	-	3S	101W
1141 Aug 19	08:39:35	917	37	-10617	85	N	-h	1.3195	0.4512	-0.5772	189.6	-	-	10S	126W
1141 Sep 17	20:32:02	916	37	-10616	123	N	h-	-1.4107	0.2734	-0.7340	145.1	-	-	1S	54E
1142 Feb 12	03:24:52	915	37	-10611	90	P	-a	-0.6093	1.7340	0.7460	303.1	172.3	-	11N	44W
1142 Aug 08	12:38:59	913	37	-10605	95	P	-t	0.6106	1.7730	0.7030	343.6	185.3	-	14S	175E
1143 Feb 01	18:43:14	911	37	-10599	100	T+	p-	0.0871	2.6808	1.7154	318.6	209.9	96.7	15N	87E
1143 Jul 28	12:59:03	910	37	-10593	105	T-	pp	-0.1383	2.6384	1.5706	371.1	232.7	101.0	18S	170E
1144 Jan 22	10:09:42	908	37	-10587	110	P	a-	0.7751	1.4298	0.4417	284.3	138.5	-	19N	145W
1144 Jul 16	17:05:11	906	36	-10581	115	P	h-	-0.8859	1.2437	0.2216	290.1	107.6	-	21S	109E
1144 Dec 12	05:12:45	905	36	-10576	82	N	-h	-1.3876	0.3501	-0.7256	174.1	-	-	22N	75W
1145 Jan 10	21:09:32	905	36	-10575	120	N	h-	1.5243	0.0832	-0.9604	83.9	-	-	22N	50E
1145 Jun 06	21:03:43	903	36	-10570	87	P	-a	0.9538	1.0818	0.1335	252.0	78.8	-	22S	47E
1145 Dec 01	05:40:03	901	36	-10564	92	P	-t	-0.7425	1.5491	0.4431	335.3	154.4	-	22N	83W
1146 May 27	14:17:39	900	36	-10558	97	T+	-p	0.2160	2.4335	1.4894	315.4	207.5	89.1	22S	148E
1146 Nov 20	05:21:49	898	36	-10552	102	T-	pp	-0.0538	2.8014	1.7180	369.0	230.9	103.2	21N	79W
1147 May 17	05:39:46	896	36	-10546	107	P	a-	-0.5454	1.8479	0.8663	312.9	184.9	-	21S	83W
1147 Nov 09	11:11:41	895	36	-10540	112	P	a-	0.6405	1.6960	0.6699	313.9	170.4	-	19N	168W
1148 Apr 06	00:59:21	893	36	-10535	79	N	-t	1.4510	0.2296	-0.8378	144.6	-	-	8S	10W
1148 May 05	14:59:05	893	36	-10534	117	N	t-	-1.3621	0.3779	-0.6601	177.9	-	-	19S	137E
1148 Sep 29	14:11:29	891	36	-10529	84	N	-a	-1.3474	0.3655	-0.5945	156.5	-	-	4N	149E
1148 Oct 28	23:56:53	891	36	-10528	122	N	a-	1.2831	0.4920	-0.4848	181.9	-	-	17N	0E
1149 Mar 26	01:14:19	890	36	-10523	89	P	-t	0.7387	1.5436	0.4623	332.0	156.9	-	4S	14W
1149 Sep 19	06:15:19	888	36	-10517	94	P	-a	-0.6793	1.5982	0.6248	292.5	159.6	-	0N	92W
1150 Mar 15	03:35:30	886	36	-10511	99	T-	pp	-0.0115	2.8604	1.8135	358.3	228.1	103.8	0S	48W
1150 Sep 08	18:30:23	885	36	-10505	104	T+	pp	0.0402	2.7949	1.7739	347.0	223.3	102.1	3S	85E

1151 Mar 04	12:54:19	883	36	-10499	109	P	a-	-0.7335	1.5090	0.5151	294.4	150.3	-	3N	173E
1151 Aug 28	23:46:19	881	36	-10493	114	P	t-	0.8087	1.4087	0.3402	317.6	135.7	-	7S	6E
1152 Jan 23	18:04:06	880	36	-10488	81	N	-a	1.2392	0.5684	-0.4001	191.9	-	-	19N	97E
1152 Feb 22	03:44:53	880	36	-10487	119	N	a-	-1.3878	0.2926	-0.6698	141.3	-	-	7N	50W
1152 Jul 18	09:01:00	878	36	-10482	86	N	-t	-1.3134	0.4769	-0.5801	202.7	-	-	21S	130W
1152 Aug 17	00:06:20	878	36	-10481	124	Nb	t-	1.5434	0.0651	-1.0122	79.1	-	-	10S	2E
1153 Jan 12	08:39:53	877	36	-10476	91	P	-a	0.5965	1.7650	0.7620	308.4	175.0	-	21N	123W
1153 Jul 07	15:07:30	875	36	-10470	96	P	-t	-0.5027	1.9382	0.9332	326.3	194.0	-	22S	138E
1154 Jan 01	17:39:53	873	35	-10464	101	T-	pp	-0.0976	2.7101	1.6483	358.4	226.0	100.4	22N	101E
1154 Jun 27	04:20:04	871	35	-10458	106	T	p-	0.2751	2.3308	1.3753	318.2	206.5	82.2	23S	61W
1154 Dec 21	19:22:47	870	35	-10452	111	P	t-	-0.8037	1.4355	0.3321	326.0	135.6	-	23N	74E
1155 May 18	14:31:56	868	35	-10447	78	Ne	-a	-1.4969	0.0870	-0.8646	79.0	-	-	22S	144E
1155 Jun 16	21:20:44	868	35	-10446	116	P	a-	1.0009	0.9916	0.0510	241.3	48.9	-	23S	43E
1155 Nov 11	00:57:21	867	35	-10441	83	N	-t	1.5216	0.1002	-0.9674	94.6	-	-	21N	14W
1155 Dec 10	18:29:41	867	35	-10440	121	N	t-	-1.4588	0.2290	-0.8655	145.5	-	-	22N	86E
1156 May 07	04:33:39	865	35	-10435	88	P	-a	-0.8089	1.3729	0.3748	291.4	133.6	-	19S	66W
1156 Oct 30	08:59:45	863	35	-10429	93	P	-a	0.7631	1.4618	0.4538	293.7	143.0	-	17N	135W
1157 Apr 26	11:44:49	862	35	-10423	98	T-	pp	-0.0578	2.7788	1.7254	365.2	231.6	104.4	16S	174W
1157 Oct 19	23:10:10	860	35	-10417	103	T+	pp	0.0532	2.7441	1.7763	320.3	211.0	97.9	13N	12E
1158 Apr 15	12:47:02	859	35	-10411	108	P	t-	0.6980	1.6165	0.5388	337.2	167.7	-	11S	171E
1158 Oct 09	15:12:38	857	35	-10405	113	P	a-	-0.6321	1.6836	0.7126	294.6	166.8	-	8N	132E
1159 Mar 06	00:35:38	856	35	-10400	80	N	-t	-1.4037	0.2994	-0.7342	156.1	-	-	2N	3W
1159 Apr 04	14:16:53	855	35	-10399	118	N	t-	1.4058	0.3050	-0.7476	162.5	-	-	7S	150E
1159 Aug 30	15:58:43	854	35	-10394	85	N	-h	1.3780	0.3470	-0.6876	168.7	-	-	6S	123E
1159 Sep 29	04:27:03	854	35	-10393	123	N	h-	-1.3810	0.3310	-0.6826	159.5	-	-	3N	66W
1160 Feb 23	11:42:21	852	35	-10388	90	P	-a	-0.6327	1.6885	0.7056	299.7	168.3	-	7N	169W
1160 Aug 18	19:27:25	851	35	-10382	95	P	-t	0.6791	1.6494	0.5750	337.3	171.4	-	10S	72E
1161 Feb 12	03:16:10	849	35	-10376	100	T+	p-	0.0678	2.7149	1.7520	318.6	210.3	97.4	11N	42W
1161 Aug 07	19:41:13	847	35	-10370	105	T-	pp	-0.0637	2.7757	1.7070	371.7	234.1	104.9	15S	69E
1162 Feb 01	18:43:27	846	35	-10364	110	P	a-	0.7639	1.4503	0.4622	286.3	141.6	-	16N	87E
1162 Jul 28	00:06:33	844	35	-10358	115	P	h-	-0.8108	1.3807	0.3602	299.8	134.0	-	18S	3E
1162 Dec 23	13:28:10	843	35	-10353	82	N	-h	-1.3954	0.3370	-0.7411	171.5	-	-	22N	163E
1163 Jan 22	05:29:11	843	35	-10352	120	N	h-	1.5194	0.0929	-0.9520	88.8	-	-	20N	75W
1163 Jun 18	04:27:53	841	34	-10347	87	P	-a	1.0257	0.9491	0.0024	238.9	10.9	-	22S	63W
1163 Jul 17	11:51:14	841	34	-10346	125	Nb	a-	-1.5013	0.0863	-0.8798	80.1	-	-	22S	173W
1163 Dec 12	13:42:14	840	34	-10341	92	P	-t	-0.7493	1.5369	0.4302	334.6	152.5	-	23N	158E
1164 Jun 06	21:43:23	838	34	-10335	97	T	-p	0.2912	2.2958	1.3511	313.2	203.8	79.6	23S	37E
1164 Nov 30	13:32:23	836	34	-10329	102	T-	pp	-0.0607	2.7881	1.7059	368.0	230.3	102.8	23N	159E
1165 May 27	12:52:48	835	34	-10323	107	P	a-	-0.4728	1.9822	0.9985	319.6	194.5	-	23S	169E
1165 Nov 19	19:41:15	833	34	-10317	112	P	a-	0.6308	1.7130	0.6883	313.7	171.7	-	22N	65E

1166 Apr 17	07:53:52	832	34	-10312	79	Ne	-t	1.5179	0.1064	-0.9602	99.7	-	-	11S	115W
1166 May 16	21:48:43	832	34	-10311	117	N	t-	-1.2910	0.5092	-0.5303	204.6	-	-	22S	35E
1166 Oct 10	22:35:54	830	34	-10306	84	N	-a	-1.3725	0.3206	-0.6417	147.3	-	-	8N	22E
1166 Nov 09	08:37:03	830	34	-10305	122	N	a-	1.2697	0.5168	-0.4604	185.7	-	-	20N	130W
1167 Apr 06	08:12:19	829	34	-10300	89	P	-t	0.7979	1.4329	0.3558	323.3	139.8	-	8S	119W
1167 Sep 30	14:24:42	827	34	-10294	94	P	-a	-0.7146	1.5359	0.5575	289.9	152.7	-	5N	145E
1168 Mar 25	11:01:46	825	34	-10288	99	T+	pp	0.0372	2.8102	1.7696	356.4	227.5	103.4	5S	161W
1168 Sep 19	02:11:24	824	34	-10282	104	T-	pp	-0.0027	2.8669	1.8394	348.9	224.0	102.6	1N	32W
1169 Mar 14	20:52:00	822	34	-10276	109	P	a-	-0.6928	1.5807	0.5927	297.4	158.8	-	1S	52E
1169 Sep 08	06:54:24	821	34	-10270	114	P	t-	0.7555	1.5089	0.4351	326.0	151.5	-	3S	102W
1170 Feb 03	02:42:27	819	34	-10265	81	N	-a	1.2550	0.5386	-0.4283	187.4	-	-	16N	33W
1170 Mar 04	12:03:23	819	34	-10264	119	N	a-	-1.3569	0.3476	-0.6115	153.0	-	-	3N	175W
1170 Jul 29	15:44:23	818	34	-10259	86	N	-t	-1.3850	0.3453	-0.7113	174.2	-	-	18S	129E
1170 Aug 28	07:00:25	818	34	-10258	124	N	t-	1.4807	0.1811	-0.8983	130.6	-	-	6S	103W
1171 Jan 23	17:13:07	816	34	-10253	91	P	-a	0.6086	1.7432	0.7393	308.2	173.5	-	18N	109E
1171 Jul 18	22:13:12	815	34	-10247	96	P	-t	-0.5751	1.8043	0.8014	319.1	183.4	-	20S	31E
1172 Jan 13	01:56:13	813	34	-10241	101	T-	pp	-0.0900	2.7248	1.6615	359.7	226.8	101.0	20N	23W
1172 Jul 07	11:43:02	812	34	-10235	106	T+	p-	0.2003	2.4673	1.5131	319.9	209.9	91.1	22S	171W
1173 Jan 01	03:24:39	810	33	-10229	111	P	t-	-0.7968	1.4481	0.3448	327.2	138.0	-	22N	46W
1173 Jun 27	04:47:37	808	33	-10223	116	P	a-	0.9283	1.1252	0.1836	253.5	91.1	-	22S	68W
1173 Nov 21	09:11:07	807	33	-10218	83	N	-t	1.5256	0.0923	-0.9740	90.6	-	-	23N	137W
1173 Dec 21	02:37:46	807	33	-10217	121	N	t-	-1.4511	0.2421	-0.8504	149.1	-	-	22N	35W
1174 May 18	11:42:14	806	33	-10212	88	P	-a	-0.8845	1.2352	0.2351	281.9	108.4	-	22S	173W
1174 Nov 10	17:31:28	804	33	-10206	93	P	-a	0.7709	1.4472	0.4399	291.8	140.7	-	20N	97E
1175 May 07	18:31:11	802	33	-10200	98	T-	pp	-0.1334	2.6404	1.5866	365.1	230.4	100.9	19S	84E
1175 Oct 31	07:47:08	801	33	-10194	103	T+	pp	0.0685	2.7168	1.7476	320.0	210.6	97.4	16N	117W
1176 Apr 25	19:28:05	799	33	-10188	108	P	t-	0.6256	1.7478	0.6731	344.7	183.3	-	15S	70E
1176 Oct 19	23:40:10	798	33	-10182	113	P	a-	-0.6127	1.7213	0.7461	297.2	169.9	-	12N	5E
1177 Mar 16	08:16:09	797	33	-10177	80	N	-t	-1.4388	0.2317	-0.7953	137.6	-	-	2S	119W
1177 Apr 14	21:21:06	796	33	-10176	118	N	t-	1.3419	0.4194	-0.6274	187.8	-	-	11S	43E
1177 Sep 09	23:24:34	795	33	-10171	85	N	-h	1.4299	0.2550	-0.7860	146.5	-	-	1S	10E
1177 Oct 09	12:29:18	795	33	-10170	123	N	h-	-1.3578	0.3766	-0.6432	170.2	-	-	8N	173E
1178 Mar 05	19:53:42	794	33	-10165	90	P	-a	-0.6616	1.6329	0.6552	295.8	163.2	-	3N	67E
1178 Aug 30	02:23:01	792	33	-10159	95	P	-t	0.7413	1.5375	0.4588	330.8	156.2	-	6S	33W
1179 Feb 23	11:43:05	790	33	-10153	100	T+	pp	0.0435	2.7580	1.7977	318.6	210.7	98.1	7N	169W
1179 Aug 19	02:31:47	789	33	-10147	105	T+	pp	0.0045	2.8848	1.8152	371.5	234.1	105.7	11S	34W
1180 Feb 13	03:10:05	787	33	-10141	110	P	a-	0.7475	1.4804	0.4924	288.9	145.8	-	12N	40W
1180 Aug 07	07:15:01	786	33	-10135	115	P	h-	-0.7404	1.5093	0.4898	307.7	152.7	-	15S	104W
1181 Jan 02	21:40:32	785	33	-10130	82	N	-h	-1.4049	0.3204	-0.7592	167.9	-	-	21N	40E
1181 Feb 01	13:41:14	784	33	-10129	120	N	h-	1.5092	0.1119	-0.9338	97.6	-	-	16N	162E

1181 Jun 28	11:53:55	783	33	-10124	87	N	-a	1.0961	0.8194	-0.1262	224.7	-	-	22S	175W
1181 Jul 27	19:19:13	783	33	-10123	125	N	a-	-1.4324	0.2123	-0.7530	123.8	-	-	19S	75E
1181 Dec 22	21:42:57	782	33	-10118	92	P	-t	-0.7570	1.5226	0.4162	333.6	150.3	-	23N	39E
1182 Jun 18	05:09:21	780	33	-10112	97	T	-a	0.3657	2.1597	1.2137	310.4	198.8	65.1	23S	74W
1182 Dec 11	21:45:28	779	32	-10106	102	T-	pp	-0.0656	2.7780	1.6978	366.8	229.8	102.5	23N	37E
1183 Jun 07	20:01:55	777	32	-10100	107	T	p-	-0.3976	2.1215	1.1351	325.7	202.8	54.8	24S	62E
1183 Dec 01	04:15:15	776	32	-10094	112	P	a-	0.6243	1.7240	0.7012	313.3	172.5	-	23N	62W
1184 May 27	04:31:30	774	32	-10088	117	N	t-	-1.2149	0.6496	-0.3917	228.8	-	-	23S	66W
1184 Oct 21	07:08:35	773	32	-10083	84	N	-a	-1.3915	0.2871	-0.6776	139.8	-	-	12N	107W
1184 Nov 19	17:23:16	773	32	-10082	122	N	a-	1.2608	0.5332	-0.4440	188.0	-	-	22N	99E
1185 Apr 16	15:00:10	771	32	-10077	89	P	-t	0.8654	1.3068	0.2339	312.5	115.3	-	12S	138E
1185 Oct 10	22:42:41	770	32	-10071	94	P	-a	-0.7424	1.4874	0.5039	287.9	146.7	-	9N	19E
1186 Apr 05	18:20:22	768	32	-10065	99	T+	pp	0.0932	2.7042	1.6700	354.1	226.1	101.6	9S	88E
1186 Sep 30	09:59:15	767	32	-10059	104	T-	pp	-0.0392	2.8032	1.7693	350.6	224.4	102.2	5N	150W
1187 Mar 26	04:43:56	765	32	-10053	109	P	a-	-0.6466	1.6626	0.6803	300.7	167.3	-	5S	67W
1187 Sep 19	14:09:37	764	32	-10047	114	P	t-	0.7085	1.5979	0.5188	333.0	163.5	-	2N	148E
1188 Feb 14	11:15:27	763	32	-10042	81	N	-a	1.2751	0.5008	-0.4645	181.5	-	-	12N	161W
1188 Mar 14	20:15:01	762	32	-10041	119	N	a-	-1.3206	0.4126	-0.5430	165.5	-	-	2S	61E
1188 Aug 08	22:33:10	761	32	-10036	86	N	-t	-1.4527	0.2212	-0.8354	140.6	-	-	15S	26E
1188 Sep 07	14:02:17	761	32	-10035	124	N	t-	1.4234	0.2874	-0.7942	162.9	-	-	2S	151E
1189 Feb 03	01:41:17	760	32	-10030	91	P	-a	0.6245	1.7143	0.7099	307.6	171.3	-	15N	18W
1189 Jul 29	05:24:55	758	32	-10024	96	P	-h	-0.6434	1.6780	0.6767	311.4	171.5	-	18S	77W
1190 Jan 23	10:06:57	757	32	-10018	101	T-	pp	-0.0782	2.7468	1.6827	360.9	227.6	101.7	18N	145W
1190 Jul 18	19:11:27	755	32	-10012	106	T+	p-	0.1294	2.5971	1.6436	320.7	211.9	96.3	20S	76E
1191 Jan 12	11:23:14	754	32	-10006	111	P	t-	-0.7870	1.4658	0.3630	328.7	141.3	-	20N	165W
1191 Jul 08	12:16:19	752	32	-10000	116	P	a-	0.8573	1.2563	0.3132	264.3	117.0	-	21S	180E
1191 Dec 02	17:28:28	751	32	-9995	83	N	-t	1.5274	0.0881	-0.9765	88.3	-	-	24N	100E
1192 Jan 01	10:45:04	751	32	-9994	121	N	t-	-1.4421	0.2572	-0.8326	153.1	-	-	21N	156W
1192 May 28	18:46:23	750	32	-9989	88	P	-a	-0.9629	1.0925	0.0899	270.4	68.7	-	23S	81E
1192 Nov 21	02:08:03	748	31	-9983	93	P	-a	0.7752	1.4386	0.4326	290.4	139.3	-	22N	32W
1193 May 18	01:10:38	747	31	-9977	98	T-	pp	-0.2140	2.4930	1.4383	363.9	227.6	93.2	21S	16W
1193 Nov 10	16:30:19	745	31	-9971	103	T+	-p	0.0789	2.6982	1.7280	319.7	210.2	96.9	19N	112E
1194 May 07	02:03:13	744	31	-9965	108	P	t-	0.5480	1.8888	0.8168	351.6	196.9	-	18S	29W
1194 Oct 31	08:13:26	743	31	-9959	113	P	a-	-0.5982	1.7499	0.7708	299.4	172.3	-	16N	124W
1195 Mar 27	15:49:42	741	31	-9954	80	N	-t	-1.4801	0.1527	-0.8679	112.0	-	-	7S	126E
1195 Apr 26	04:20:12	741	31	-9953	118	N	t-	1.2726	0.5438	-0.4974	210.4	-	-	14S	63W
1195 Sep 21	06:57:59	740	31	-9948	85	N	-h	1.4749	0.1756	-0.8718	123.0	-	-	3N	104W
1195 Oct 20	20:38:36	740	31	-9947	123	N	h-	-1.3407	0.4110	-0.6146	178.0	-	-	12N	50E
1196 Mar 16	03:56:35	739	31	-9942	90	P	-a	-0.6982	1.5629	0.5905	290.8	156.3	-	2S	55W
1196 Sep 09	09:26:39	737	31	-9936	95	P	-t	0.7966	1.4383	0.3551	324.4	139.8	-	2S	140W

1197 Mar 05	20:01:33	736	31	-9930	100	T+	pp	0.0120	2.8147	1.8570	318.6	211.0	98.7	3N	65E
1197 Aug 29	09:31:56	734	31	-9924	105	T+	pp	0.0655	2.7735	1.7027	370.7	233.2	104.4	7S	140W
1198 Feb 23	11:28:21	733	31	-9918	110	P	a-	0.7246	1.5222	0.5345	292.2	151.3	-	8N	166W
1198 Aug 18	14:32:49	731	31	-9912	115	P	a-	-0.6765	1.6261	0.6074	313.8	166.3	-	12S	145E
1199 Jan 14	05:49:58	730	31	-9907	82	N	-h	-1.4159	0.3007	-0.7798	163.4	-	-	19N	81W
1199 Feb 12	21:46:42	730	31	-9906	120	N	h-	1.4945	0.1390	-0.9070	108.9	-	-	13N	41E
1199 Jul 09	19:21:27	729	31	-9901	87	N	-a	1.1656	0.6916	-0.2537	208.8	-	-	20S	74E
1199 Aug 08	02:52:15	729	31	-9900	125	N	a-	-1.3667	0.3327	-0.6322	152.9	-	-	16S	39W
1200 Jan 03	05:44:06	727	31	-9895	92	P	-t	-0.7645	1.5085	0.4031	332.5	148.2	-	21N	81W
1200 Jun 28	12:34:18	726	31	-9889	97	T	-a	0.4407	2.0231	1.0752	306.9	192.4	40.3	22S	175E
1200 Dec 22	06:00:30	725	31	-9883	102	T-	pp	-0.0700	2.7685	1.6911	365.6	229.3	102.2	23N	86W

13TH CENTURY CE

In the 13th century CE the total number of lunar eclipses was 251 lunar eclipses: 95 penumbral lunar eclipses, 96 partial lunar eclipses, 60 total lunar eclipses (48 central total lunar eclipses, 12 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
			GREATEST								m	m	m	°	°
			ECLIPSE												
1201 Jun 18	03:08:24	723	31	-9877	107	T	p-	-0.3209	2.2641	1.2743	331.1	209.6	74.8	24S	44W
1201 Dec 11	12:52:33	722	31	-9871	112	P	a-	0.6197	1.7312	0.7109	312.5	172.9	-	24N	169E
1202 Jun 07	11:11:55	720	31	-9865	117	N	t-	-1.1370	0.7938	-0.2498	250.1	-	-	24S	166W
1202 Nov 01	15:46:19	719	30	-9860	84	N	-a	-1.4068	0.2600	-0.7067	133.5	-	-	15N	123E
1202 Dec 01	02:11:48	719	30	-9859	122	N	a-	1.2536	0.5463	-0.4306	189.8	-	-	24N	32W
1203 Apr 27	21:44:10	718	30	-9854	89	P	-t	0.9364	1.1747	0.1057	299.9	78.9	-	15S	36E
1203 Oct 22	07:06:20	716	30	-9848	94	P	-a	-0.7653	1.4480	0.4596	286.4	141.4	-	13N	107W
1204 Apr 16	01:33:03	715	30	-9842	99	T+	pp	0.1551	2.5876	1.5594	351.2	223.8	97.6	12S	21W
1204 Oct 10	17:54:12	714	30	-9836	104	T-	pp	-0.0691	2.7515	1.7114	352.1	224.5	101.4	10N	91E

1205 Apr 05	12:28:27	712	30	-9830	109	P	a-	-0.5936	1.7571	0.7803	304.3	175.8	-	9S	176E
1205 Sep 29	21:33:46	711	30	-9824	114	P	t-	0.6689	1.6732	0.5890	338.7	172.6	-	6N	36E
1206 Feb 24	19:39:18	710	30	-9819	81	N	-a	1.3030	0.4489	-0.5146	172.8	-	-	8N	72E
1206 Mar 26	04:18:02	709	30	-9818	119	N	a-	-1.2771	0.4907	-0.4617	179.0	-	-	6S	61W
1206 Aug 20	05:32:44	708	30	-9813	86	N	-t	-1.5123	0.1117	-0.9451	100.7	-	-	12S	79W
1206 Sep 18	21:15:33	708	30	-9812	124	N	t-	1.3744	0.3784	-0.7054	185.2	-	-	2N	41E
1207 Feb 14	10:01:06	707	30	-9807	91	P	-a	0.6469	1.6733	0.6686	306.3	167.9	-	11N	143W
1207 Aug 09	12:43:39	706	30	-9801	96	P	-h	-0.7071	1.5607	0.5605	303.6	158.5	-	15S	173E
1208 Feb 03	18:10:28	704	30	-9795	101	T-	pp	-0.0611	2.7784	1.7139	362.1	228.5	102.6	14N	94E
1208 Jul 29	02:44:01	703	30	-9789	106	T+	pp	0.0612	2.7222	1.7687	321.0	212.8	99.0	17S	37W
1209 Jan 22	19:16:00	702	30	-9783	111	P	t-	-0.7726	1.4915	0.3903	330.6	146.0	-	17N	77E
1209 Jul 18	19:47:11	700	30	-9777	116	P	a-	0.7881	1.3844	0.4390	273.7	136.0	-	19S	67E
1209 Dec 13	01:49:59	699	30	-9772	83	N	-t	1.5268	0.0878	-0.9743	87.8	-	-	25N	25W
1210 Jan 11	18:50:54	699	30	-9771	121	N	t-	-1.4311	0.2758	-0.8105	157.8	-	-	19N	83E
1210 Jun 09	01:46:18	698	30	-9766	88	N	-h	-1.0436	0.9460	-0.0595	256.6	-	-	24S	24W
1210 Dec 02	10:48:50	696	30	-9760	93	P	-a	0.7770	1.4345	0.4302	289.3	138.6	-	24N	161W
1211 May 29	07:45:28	695	30	-9754	98	T	-t	-0.2977	2.3399	1.2841	361.6	222.9	79.8	23S	114W
1211 Nov 22	01:18:33	694	30	-9748	103	T+	-p	0.0853	2.6868	1.7158	319.5	210.0	96.6	22N	19W
1212 May 17	08:32:45	692	30	-9742	108	P	t-	0.4653	2.0393	0.9698	357.7	208.5	-	20S	126W
1212 Nov 10	16:52:45	691	29	-9736	113	P	a-	-0.5891	1.7684	0.7855	301.0	173.7	-	19N	106E
1213 Apr 06	23:17:12	690	29	-9731	80	Ne	-t	-1.5271	0.0633	-0.9510	72.3	-	-	11S	13E
1213 May 06	11:15:10	690	29	-9730	118	N	t-	1.1984	0.6772	-0.3587	230.8	-	-	17S	167W
1213 Oct 01	14:38:25	688	29	-9725	85	N	-h	1.5135	0.1081	-0.9455	97.5	-	-	7N	140E
1213 Oct 31	04:53:25	688	29	-9724	123	N	h-	-1.3286	0.4360	-0.5952	183.7	-	-	15N	74W
1214 Mar 27	11:53:26	687	29	-9719	90	P	-a	-0.7406	1.4828	0.5153	285.1	147.4	-	6S	175W
1214 Sep 20	16:39:18	686	29	-9713	95	P	-t	0.8443	1.3530	0.2655	318.4	122.6	-	2N	111E
1215 Mar 17	04:13:29	684	29	-9707	100	T-	pp	-0.0249	2.7897	1.8345	318.4	211.1	98.7	1S	59W
1215 Sep 09	16:40:48	683	29	-9701	105	T+	pp	0.1199	2.6743	1.6023	369.3	231.5	101.4	3S	111E
1216 Mar 05	19:38:17	682	29	-9695	110	P	a-	0.6957	1.5752	0.5878	296.1	157.7	-	4N	71E
1216 Aug 28	21:59:32	680	29	-9689	115	P	a-	-0.6192	1.7310	0.7129	318.5	176.5	-	8S	33E
1217 Jan 24	13:51:46	679	29	-9684	82	N	-t	-1.4323	0.2707	-0.8100	155.8	-	-	16N	158E
1217 Feb 23	05:41:07	679	29	-9683	120	N	t-	1.4721	0.1803	-0.8659	123.9	-	-	8N	79W
1217 Jul 20	02:53:27	678	29	-9678	87	N	-a	1.2316	0.5707	-0.3749	191.8	-	-	18S	39W
1217 Aug 18	10:33:42	678	29	-9677	125	N	a-	-1.3073	0.4417	-0.5234	173.9	-	-	12S	155W
1218 Jan 13	13:40:30	677	29	-9672	92	P	-t	-0.7754	1.4876	0.3839	330.7	145.0	-	19N	161E
1218 Jul 09	20:01:05	675	29	-9666	97	P	-a	0.5137	1.8904	0.9399	302.7	184.6	-	21S	64E
1219 Jan 02	14:13:46	674	29	-9660	102	T-	pp	-0.0764	2.7551	1.6811	364.3	228.7	101.9	22N	152E
1219 Jun 29	10:13:43	673	29	-9654	107	T-	pp	-0.2441	2.4069	1.4132	335.7	215.1	87.6	23S	150W
1219 Dec 22	21:30:53	671	29	-9648	112	P	a-	0.6154	1.7375	0.7203	311.8	173.3	-	24N	41E
1220 Jun 17	17:47:12	670	29	-9642	117	N	t-	-1.0554	0.9448	-0.1015	269.6	-	-	24S	96E

1220 Nov 12	00:31:02	669	29	-9637	84	N	-a	-1.4166	0.2429	-0.7258	129.2	-	-	18N	8W
1220 Dec 11	11:03:45	669	29	-9636	122	N	a-	1.2492	0.5538	-0.4223	190.7	-	-	25N	164W
1221 May 08	04:20:52	668	29	-9631	89	Nx	-t	1.0129	1.0324	-0.0329	284.8	-	-	18S	63W
1221 Nov 01	15:36:47	666	29	-9625	94	P	-a	-0.7819	1.4197	0.4267	285.5	137.2	-	16N	125E
1222 Apr 27	08:40:28	665	29	-9619	99	T+	pp	0.2220	2.4618	1.4395	347.6	220.4	90.8	16S	128W
1222 Oct 22	01:56:25	664	29	-9613	104	T-	pp	-0.0918	2.7127	1.6666	353.5	224.6	100.5	13N	30W
1223 Apr 16	20:07:42	663	28	-9607	109	P	a-	-0.5354	1.8612	0.8896	307.8	183.8	-	13S	60E
1223 Oct 11	05:05:07	661	28	-9601	114	P	t-	0.6354	1.7371	0.6481	343.4	179.5	-	10N	77W
1224 Mar 07	03:57:04	660	28	-9596	81	N	-a	1.3356	0.3881	-0.5737	161.7	-	-	4N	53W
1224 Apr 05	12:14:55	660	28	-9595	119	N	a-	-1.2287	0.5781	-0.3714	192.4	-	-	10S	179E
1224 Aug 30	12:40:12	659	28	-9590	86	Ne	-t	-1.5663	0.0130	-1.0442	34.6	-	-	8S	173E
1224 Sep 29	04:37:50	659	28	-9589	124	N	t-	1.3317	0.4577	-0.6280	202.0	-	-	6N	70W
1225 Feb 24	18:12:43	658	28	-9584	91	P	-a	0.6756	1.6208	0.6161	304.4	163.0	-	7N	93E
1225 Aug 19	20:10:48	656	28	-9578	96	P	-a	-0.7646	1.4548	0.4553	295.8	144.8	-	11S	61E
1226 Feb 14	02:06:25	655	28	-9572	101	T-	pp	-0.0382	2.8204	1.7560	363.2	229.3	103.4	11N	25W
1226 Aug 09	10:22:56	654	28	-9566	106	T-	pp	-0.0020	2.8310	1.8771	320.7	212.8	99.6	14S	152W
1227 Feb 03	03:02:45	652	28	-9560	111	P	t-	-0.7532	1.5260	0.4268	333.0	151.9	-	14N	39W
1227 Jul 30	03:22:18	651	28	-9554	116	P	a-	0.7225	1.5061	0.5580	281.9	150.7	-	16S	47W
1227 Dec 24	10:11:40	650	28	-9549	83	N	-h	1.5268	0.0863	-0.9725	86.8	-	-	25N	149W
1228 Jan 23	02:52:13	650	28	-9548	121	N	h-	-1.4158	0.3017	-0.7805	164.2	-	-	17N	37W
1228 Jun 19	08:43:23	649	28	-9543	88	N	-h	-1.1255	0.7975	-0.2115	240.3	-	-	25S	128W
1228 Jul 18	18:28:39	649	28	-9542	126	N	h-	1.4997	0.0982	-0.8858	87.2	-	-	18S	86E
1228 Dec 12	19:31:47	648	28	-9537	93	P	-a	0.7777	1.4320	0.4300	288.2	138.2	-	24N	70E
1229 Jun 08	14:17:06	646	28	-9531	98	T	-t	-0.3836	2.1832	1.1257	358.1	216.0	56.1	24S	148E
1229 Dec 02	10:09:20	645	28	-9525	103	T+	-p	0.0900	2.6784	1.7071	319.3	209.8	96.3	23N	151W
1230 May 28	15:00:05	644	28	-9519	108	T	t-	0.3802	2.1944	1.1270	362.7	217.9	56.8	22S	137E
1230 Nov 22	01:36:17	643	28	-9513	113	P	a-	-0.5835	1.7803	0.7942	302.4	174.7	-	21N	24W
1231 May 17	18:06:25	641	28	-9507	118	N	t-	1.1200	0.8186	-0.2124	249.1	-	-	20S	90E
1231 Oct 12	22:26:26	640	28	-9502	85	N	-h	1.5451	0.0531	-1.0066	69.0	-	-	12N	22E
1231 Nov 11	13:14:01	640	28	-9501	123	N	h-	-1.3216	0.4513	-0.5850	187.4	-	-	18N	161E
1232 Apr 06	19:42:39	639	28	-9496	90	P	-a	-0.7898	1.3900	0.4274	278.2	135.8	-	10S	67E
1232 Oct 01	00:01:16	638	28	-9490	95	P	-t	0.8838	1.2825	0.1909	313.0	105.2	-	7N	1W
1233 Mar 27	12:15:35	637	28	-9484	100	T-	pp	-0.0699	2.7059	1.7530	318.1	210.9	98.0	6S	180E
1233 Sep 20	00:00:48	635	27	-9478	105	T+	pp	0.1656	2.5910	1.5177	367.8	229.4	97.5	2N	0E
1234 Mar 17	03:39:26	634	27	-9472	110	P	a-	0.6602	1.6402	0.6530	300.6	165.0	-	1S	50W
1234 Sep 09	05:35:17	633	27	-9466	115	P	a-	-0.5683	1.8242	0.8063	322.0	184.1	-	3S	82W
1235 Feb 04	21:47:49	632	27	-9461	82	N	-t	-1.4526	0.2334	-0.8471	145.5	-	-	13N	39E
1235 Mar 06	13:27:38	632	27	-9460	120	N	t-	1.4440	0.2318	-0.8143	140.3	-	-	4N	164E
1235 Jul 31	10:29:14	631	27	-9455	87	N	-a	1.2947	0.4554	-0.4910	173.1	-	-	15S	154W
1235 Aug 29	18:21:51	630	27	-9454	125	N	a-	-1.2529	0.5418	-0.4238	190.4	-	-	8S	87E

1236	Jan 24	21:33:23	629	27	-9449	92	P	-t	-0.7894	1.4606	0.3595	328.4	140.8	-	17N	43E
1236	Jul 20	03:28:50	628	27	-9443	97	P	-a	0.5855	1.7603	0.8066	297.8	175.3	-	19S	48W
1237	Jan 12	22:26:10	627	27	-9437	102	T-	pp	-0.0841	2.7388	1.6689	362.8	228.1	101.5	20N	29E
1237	Jul 09	17:19:41	626	27	-9431	107	T-	pp	-0.1687	2.5475	1.5494	339.6	219.1	95.8	22S	104E
1238	Jan 02	06:08:14	624	27	-9425	112	P	a-	0.6097	1.7462	0.7325	311.0	173.9	-	23N	87W
1238	Jun 29	00:23:41	623	27	-9419	117	P	t-	-0.9752	1.0937	0.0441	286.5	50.7	-	24S	3W
1238	Nov 23	09:19:21	622	27	-9414	84	N	-a	-1.4237	0.2308	-0.7395	126.2	-	-	20N	139W
1238	Dec 22	19:55:45	622	27	-9413	122	N	a-	1.2450	0.5609	-0.4140	191.5	-	-	25N	65E
1239	May 19	10:55:07	621	27	-9408	89	N	-t	1.0917	0.8861	-0.1757	267.2	-	-	20S	162W
1239	Nov 13	00:11:29	620	27	-9402	94	P	-a	-0.7947	1.3984	0.4011	285.0	133.8	-	19N	3W
1240	May 07	15:44:11	619	27	-9396	99	T	-p	0.2929	2.3291	1.3123	343.1	215.7	80.2	19S	125E
1240	Nov 01	10:04:23	617	27	-9390	104	T-	pp	-0.1095	2.6830	1.6315	354.9	224.7	99.6	17N	152W
1241	Apr 27	03:40:34	616	27	-9384	109	T	a-	-0.4711	1.9769	1.0101	311.2	191.2	15.2	16S	54W
1241	Oct 21	12:45:06	615	27	-9378	114	P	t-	0.6090	1.7876	0.6943	347.0	184.6	-	14N	167E
1242	Mar 18	12:05:30	614	27	-9373	81	N	-a	1.3760	0.3132	-0.6470	146.5	-	-	1S	177W
1242	Apr 16	20:04:25	614	27	-9372	119	N	a-	-1.1740	0.6770	-0.2699	206.1	-	-	14S	60E
1242	Oct 10	12:09:43	612	27	-9366	124	N	t-	1.2960	0.5241	-0.5633	214.6	-	-	10N	176E
1243	Mar 08	02:14:39	611	27	-9361	91	P	-a	0.7116	1.5547	0.5499	301.4	156.1	-	3N	28W
1243	Aug 31	03:46:48	610	27	-9355	96	P	-a	-0.8157	1.3607	0.3617	288.2	130.4	-	7S	54W
1244	Feb 25	09:51:46	609	27	-9349	101	T-	pp	-0.0073	2.8768	1.8128	364.2	230.1	104.1	7N	142W
1244	Aug 19	18:08:05	608	26	-9343	106	T-	pp	-0.0604	2.7244	1.7695	320.1	212.1	98.7	10S	91E
1245	Feb 13	10:41:31	607	26	-9337	111	P	t-	-0.7273	1.5722	0.4756	336.1	159.2	-	10N	154W
1245	Aug 09	11:02:07	606	26	-9331	116	P	a-	0.6611	1.6205	0.6690	288.9	162.4	-	13S	163W
1246	Jan 03	18:33:03	605	26	-9326	83	N	-h	1.5278	0.0824	-0.9726	84.5	-	-	23N	87E
1246	Feb 02	10:48:34	604	26	-9325	121	N	h-	-1.3957	0.3361	-0.7412	172.2	-	-	13N	156W
1246	Jun 30	15:39:36	603	26	-9320	88	N	-h	-1.2069	0.6502	-0.3629	221.2	-	-	24S	129E
1246	Jul 30	01:46:38	603	26	-9319	126	N	h-	1.4377	0.2145	-0.7745	128.1	-	-	16S	24W
1246	Dec 24	04:16:44	602	26	-9314	93	P	-a	0.7778	1.4306	0.4312	287.3	138.1	-	24N	60W
1247	Jun 19	20:45:27	601	26	-9308	98	P	-t	-0.4714	2.0231	0.9637	353.2	206.5	-	24S	51E
1247	Dec 13	19:02:57	600	26	-9302	103	T+	-p	0.0924	2.6740	1.7026	319.2	209.6	96.2	24N	77E
1248	Jun 07	21:24:54	599	26	-9296	108	T	tp	0.2923	2.3547	1.2891	366.6	225.2	81.0	23S	41E
1248	Dec 02	10:22:42	597	26	-9290	113	P	a-	-0.5810	1.7863	0.7973	303.5	175.3	-	22N	155W
1249	May 28	00:56:05	596	26	-9284	118	N	t-	1.0390	0.9649	-0.0616	265.2	-	-	22S	12W
1249	Oct 23	06:20:58	595	26	-9279	85	N	-h	1.5707	0.0091	-1.0563	28.7	-	-	15N	97W
1249	Nov 21	21:38:05	595	26	-9278	123	N	h-	-1.3181	0.4602	-0.5807	189.8	-	-	20N	35E
1250	Apr 18	03:27:05	594	26	-9273	90	P	-a	-0.8433	1.2896	0.3313	270.2	121.1	-	14S	50W
1250	Oct 12	07:30:00	593	26	-9267	95	P	-t	0.9176	1.2224	0.1270	308.1	86.6	-	11N	114W
1251	Apr 07	20:11:47	592	26	-9261	100	T-	-p	-0.1198	2.6135	1.6625	317.6	210.2	96.1	10S	59E
1251	Oct 01	07:29:55	591	26	-9255	105	T+	pp	0.2045	2.5203	1.4459	366.0	227.2	93.1	6N	113W
1252	Mar 27	11:30:31	589	26	-9249	110	P	a-	0.6170	1.7193	0.7322	305.6	172.9	-	5S	169W

1252 Sep 19	13:20:58	588	26	-9243	115	P	a-	-0.5248	1.9039	0.8862	324.6	189.7	-	1N	160E
1253 Feb 15	05:33:54	587	26	-9238	82	N	-t	-1.4801	0.1825	-0.8973	129.4	-	-	9N	78W
1253 Mar 16	21:02:28	587	26	-9237	120	N	t-	1.4072	0.2992	-0.7467	158.9	-	-	0S	49E
1253 Aug 10	18:11:48	586	26	-9232	87	N	-a	1.3524	0.3502	-0.5975	153.3	-	-	12S	90E
1253 Sep 09	02:19:20	586	26	-9231	125	N	a-	-1.2056	0.6290	-0.3374	203.0	-	-	4S	33W
1254 Feb 04	05:18:09	585	26	-9226	92	P	-t	-0.8099	1.4213	0.3233	325.0	134.2	-	13N	73W
1254 Jul 31	11:01:31	584	26	-9220	97	P	-a	0.6526	1.6391	0.6817	292.7	164.8	-	16S	162W
1255 Jan 24	06:34:19	583	26	-9214	102	T-	pp	-0.0960	2.7147	1.6496	361.1	227.4	101.0	17N	92W
1255 Jul 21	00:25:56	582	25	-9208	107	T-	pp	-0.0945	2.6861	1.6830	342.6	221.9	100.7	19S	3W
1256 Jan 13	14:44:00	580	25	-9202	112	P	a-	0.6022	1.7578	0.7482	310.5	174.9	-	21N	145E
1256 Jul 09	06:58:58	579	25	-9196	117	P	t-	-0.8946	1.2433	0.1902	301.6	103.3	-	22S	101W
1256 Dec 03	18:11:26	578	25	-9191	84	N	-a	-1.4280	0.2233	-0.7481	124.3	-	-	22N	89E
1257 Jan 02	04:46:56	578	25	-9190	122	N	a-	1.2403	0.5688	-0.4044	192.5	-	-	23N	67W
1257 May 29	17:25:25	577	25	-9185	89	N	-t	1.1737	0.7341	-0.3246	246.3	-	-	22S	101E
1257 Nov 23	08:51:07	576	25	-9179	94	P	-a	-0.8029	1.3854	0.3843	285.0	131.6	-	21N	133W
1258 May 18	22:45:13	575	25	-9173	99	T	-p	0.3669	2.1907	1.1789	337.9	209.4	63.4	21S	20E
1258 Nov 12	18:16:55	574	25	-9167	104	T-	-p	-0.1226	2.6615	1.6049	356.3	224.8	98.9	20N	85E
1259 May 08	11:10:14	573	25	-9161	109	T	a-	-0.4034	2.0988	1.1364	314.2	197.7	53.8	19S	167W
1259 Nov 01	20:31:49	572	25	-9155	114	P	t-	0.5884	1.8274	0.7302	349.9	188.3	-	17N	50E
1260 Mar 28	20:06:04	571	25	-9150	81	N	-a	1.4224	0.2273	-0.7315	125.9	-	-	5S	62E
1260 Apr 27	03:47:25	570	25	-9149	119	N	a-	-1.1142	0.7857	-0.1591	219.5	-	-	17S	56W
1260 Oct 20	19:50:49	569	25	-9143	124	N	t-	1.2671	0.5778	-0.5110	223.9	-	-	14N	60E
1261 Mar 18	10:07:53	568	25	-9138	91	P	-a	0.7540	1.4770	0.4721	297.4	146.9	-	1S	148W
1261 Sep 10	11:32:12	567	25	-9132	96	P	-a	-0.8598	1.2797	0.2809	281.2	116.0	-	3S	172W
1262 Mar 07	17:28:14	566	25	-9126	101	T+	pp	0.0302	2.8347	1.7711	365.0	230.6	104.2	2N	103E
1262 Aug 31	02:01:36	565	25	-9120	106	T-	pp	-0.1120	2.6303	1.6742	319.1	210.8	96.5	6S	29W
1263 Feb 24	18:12:38	564	25	-9114	111	P	t-	-0.6951	1.6298	0.5363	339.6	167.4	-	6N	92E
1263 Aug 20	18:46:58	563	25	-9108	116	P	a-	0.6042	1.7269	0.7716	295.0	171.6	-	10S	80E
1264 Jan 15	02:52:05	562	25	-9103	83	N	-h	1.5314	0.0736	-0.9770	79.6	-	-	21N	37W
1264 Feb 13	18:38:51	562	25	-9102	121	N	h-	-1.3700	0.3806	-0.6915	181.8	-	-	10N	86E
1264 Jul 10	22:36:08	561	25	-9097	88	N	-h	-1.2871	0.5054	-0.5123	198.7	-	-	22S	25E
1264 Aug 09	09:08:40	561	25	-9096	126	N	h-	1.3793	0.3244	-0.6701	156.6	-	-	12S	135W
1265 Jan 03	12:59:17	560	25	-9091	93	P	-a	0.7803	1.4242	0.4281	285.9	137.3	-	23N	170E
1265 Jun 30	03:14:03	559	25	-9085	98	P	-t	-0.5583	1.8648	0.8029	347.1	194.4	-	23S	45W
1265 Dec 24	03:55:54	557	25	-9079	103	T+	-p	0.0957	2.6676	1.6967	319.0	209.5	96.0	23N	55W
1266 Jun 19	03:50:14	556	25	-9073	108	T+	pp	0.2045	2.5152	1.4510	369.3	230.3	94.8	23S	55W
1266 Dec 13	19:09:34	555	24	-9067	113	P	a-	-0.5793	1.7908	0.7994	304.5	175.8	-	23N	75E
1267 Jun 08	07:45:04	554	24	-9061	118	P	t-	0.9561	1.1150	0.0926	279.4	71.0	-	22S	114W
1267 Dec 03	06:05:05	553	24	-9055	123	N	h-	-1.3176	0.4631	-0.5818	191.1	-	-	22N	90W
1268 Apr 28	11:03:43	552	24	-9050	90	P	-a	-0.9038	1.1766	0.2224	260.7	100.6	-	17S	165W

1268	Oct 22	15:08:25	551	24	-9044	95	P	-t	0.9433	1.1770	0.0782	304.2	68.5	-	15N	131E
1269	Apr 18	03:59:27	550	24	-9038	100	T-	-p	-0.1768	2.5080	1.5586	316.6	208.7	92.4	13S	58W
1269	Oct 11	15:09:31	549	24	-9032	105	T+	pp	0.2354	2.4640	1.3889	364.3	225.0	88.8	10N	131E
1270	Apr 07	19:13:10	548	24	-9026	110	P	a-	0.5675	1.8102	0.8230	310.9	181.1	-	9S	74E
1270	Sep 30	21:16:47	547	24	-9020	115	P	a-	-0.4887	1.9702	0.9526	326.2	193.8	-	5N	40E
1271	Feb 26	13:12:36	546	24	-9015	82	N	-t	-1.5127	0.1221	-0.9566	106.6	-	-	5N	167E
1271	Mar 28	04:28:42	546	24	-9014	120	N	t-	1.3643	0.3779	-0.6679	177.8	-	-	4S	64W
1271	Aug 22	01:59:04	545	24	-9009	87	N	-a	1.4063	0.2522	-0.6974	131.2	-	-	8S	28W
1271	Sep 20	10:23:59	545	24	-9008	125	N	a-	-1.1638	0.7061	-0.2614	213.1	-	-	1N	156W
1272	Feb 15	12:57:49	544	24	-9003	92	P	-t	-0.8346	1.3743	0.2799	320.7	125.6	-	9N	171E
1272	Aug 10	18:37:42	543	24	-8997	97	P	-a	0.7160	1.5250	0.5633	287.2	153.0	-	12S	83E
1273	Feb 03	14:37:39	542	24	-8991	102	T-	pp	-0.1123	2.6822	1.6224	359.3	226.6	100.1	14N	147E
1273	Jul 31	07:35:48	541	24	-8985	107	T-	pp	-0.0244	2.8174	1.8090	345.0	223.4	102.8	16S	111W
1274	Jan 23	23:16:19	539	24	-8979	112	P	a-	0.5917	1.7748	0.7698	310.1	176.3	-	18N	17E
1274	Jul 20	13:37:11	538	24	-8973	117	P	t-	-0.8168	1.3881	0.3311	314.6	133.8	-	20S	159E
1274	Dec 15	03:03:36	537	24	-8968	84	N	-a	-1.4324	0.2158	-0.7564	122.3	-	-	22N	43W
1275	Jan 13	13:34:57	537	24	-8967	122	N	a-	1.2331	0.5809	-0.3903	194.1	-	-	21N	162E
1275	Jun 09	23:56:21	536	24	-8962	89	N	-t	1.2550	0.5834	-0.4725	222.2	-	-	22S	3E
1275	Jul 09	14:25:47	536	24	-8961	127	Nb	t-	-1.5733	0.0064	-1.0631	24.8	-	-	23S	147E
1275	Dec 04	17:32:16	535	24	-8956	94	P	-a	-0.8093	1.3753	0.3707	285.3	129.9	-	22N	98E
1276	May 29	05:44:02	534	24	-8950	99	T	-t	0.4435	2.0478	1.0406	331.6	201.4	31.5	22S	84W
1276	Nov 23	02:33:26	533	24	-8944	104	T-	-p	-0.1315	2.6474	1.5864	357.6	225.1	98.3	22N	39W
1277	May 18	18:36:10	532	24	-8938	109	T	a-	-0.3321	2.2276	1.2690	316.7	203.1	72.3	21S	82E
1277	Nov 12	04:24:04	531	24	-8932	114	P	t-	0.5728	1.8576	0.7573	352.1	191.0	-	20N	67W
1278	Apr 09	03:57:59	530	23	-8927	81	N	-a	1.4755	0.1295	-0.8283	96.0	-	-	9S	57W
1278	May 08	11:25:10	530	23	-8926	119	N	a-	-1.0502	0.9024	-0.0409	232.4	-	-	20S	171W
1278	Nov 01	03:41:05	529	23	-8920	124	N	t-	1.2454	0.6181	-0.4715	230.4	-	-	18N	57W
1279	Mar 29	17:50:46	528	23	-8915	91	P	-a	0.8041	1.3851	0.3800	292.1	134.1	-	6S	96E
1279	Sep 21	19:26:47	527	23	-8909	96	P	-a	-0.8971	1.2113	0.2125	274.8	101.5	-	1N	69E
1280	Mar 18	00:53:33	526	23	-8903	101	T+	pp	0.0761	2.7501	1.6873	365.5	230.6	103.2	2S	10W
1280	Sep 10	10:02:44	525	23	-8897	106	T-	-p	-0.1576	2.5475	1.5896	318.1	209.2	93.5	2S	150W
1281	Mar 07	01:33:34	524	23	-8891	111	P	t-	-0.6543	1.7028	0.6127	343.7	176.7	-	2N	19W
1281	Aug 31	02:38:33	523	23	-8885	116	P	a-	0.5531	1.8226	0.8632	300.1	179.0	-	6S	38W
1282	Jan 25	11:08:15	522	23	-8880	83	N	-h	1.5381	0.0587	-0.9868	70.9	-	-	18N	161W
1282	Feb 24	02:22:58	522	23	-8879	121	N	h-	-1.3384	0.4357	-0.6307	192.8	-	-	6N	31W
1282	Jul 22	05:33:16	521	23	-8874	88	N	-h	-1.3653	0.3644	-0.6583	171.7	-	-	20S	79W
1282	Aug 20	16:34:21	521	23	-8873	126	N	h-	1.3245	0.4280	-0.5724	178.9	-	-	9S	113E
1283	Jan 14	21:40:28	520	23	-8868	93	P	-a	0.7846	1.4146	0.4221	284.4	136.2	-	20N	41E
1283	Jul 11	09:42:50	519	23	-8862	98	P	-t	-0.6444	1.7082	0.6436	339.6	179.1	-	22S	142W
1284	Jan 04	12:48:09	518	23	-8856	103	T+	-p	0.0994	2.6604	1.6904	318.9	209.5	95.9	22N	173E

1284	Jun 29	10:15:56	517	23	-8850	108	T+	pp	0.1164	2.6762	1.6130	370.8	233.4	102.7	23S	151W
1284	Dec 24	03:56:34	516	23	-8844	113	P	a-	-0.5782	1.7937	0.8004	305.4	176.2	-	23N	56W
1285	Jun 18	14:36:06	515	23	-8838	118	P	h-	0.8736	1.2646	0.2457	291.4	112.8	-	23S	143E
1285	Dec 13	14:31:33	514	23	-8832	123	N	h-	-1.3173	0.4653	-0.5830	192.2	-	-	22N	144E
1286	May 09	18:38:02	513	23	-8827	90	P	-a	-0.9666	1.0597	0.1089	250.0	71.4	-	20S	81E
1286	Nov 02	22:53:15	512	23	-8821	95	P	-t	0.9638	1.1408	0.0392	300.9	48.8	-	18N	15E
1287	Apr 29	11:41:28	511	23	-8815	100	T-	-p	-0.2383	2.3946	1.4464	315.1	206.3	86.5	17S	174W
1287	Oct 22	22:57:37	510	23	-8809	105	T+	pp	0.2598	2.4194	1.3437	362.7	223.0	84.8	14N	14E
1288	Apr 18	02:46:53	509	23	-8803	110	P	a-	0.5113	1.9137	0.9259	316.4	189.2	-	13S	40W
1288	Oct 11	05:22:06	508	23	-8797	115	T	a-	-0.4599	2.0229	1.0055	327.2	196.5	11.6	10N	82W
1289	Mar 08	20:39:08	507	23	-8792	82	Ne	-t	-1.5540	0.0457	-1.0317	65.8	-	-	0N	54E
1289	Apr 07	11:43:10	507	23	-8791	120	N	t-	1.3126	0.4727	-0.5732	197.7	-	-	9S	173W
1289	Sep 01	09:55:07	506	22	-8786	87	N	-a	1.4532	0.1674	-0.7844	107.7	-	-	4S	148W
1289	Sep 30	18:38:28	506	22	-8785	125	N	a-	-1.1300	0.7689	-0.1998	220.6	-	-	5N	80E
1290	Feb 25	20:28:07	505	22	-8780	92	P	-t	-0.8665	1.3136	0.2233	315.1	113.0	-	5N	58E
1290	Aug 22	02:19:27	504	22	-8774	97	P	-a	0.7740	1.4208	0.4545	281.5	140.0	-	9S	33W
1291	Feb 14	22:34:38	503	22	-8768	102	T-	pp	-0.1344	2.6387	1.5846	357.3	225.5	98.6	10N	27E
1291	Aug 11	14:49:02	502	22	-8762	107	T+	pp	0.0418	2.7884	1.7742	346.7	223.8	102.6	13S	141E
1292	Feb 04	07:43:11	501	22	-8756	112	P	a-	0.5760	1.8011	0.8011	310.1	178.5	-	15N	110W
1292	Jul 30	20:17:40	500	22	-8750	117	P	t-	-0.7410	1.5293	0.4679	325.9	156.1	-	17S	59E
1292	Dec 25	11:56:40	499	22	-8745	84	N	-a	-1.4361	0.2091	-0.7634	120.6	-	-	22N	176W
1293	Jan 23	22:19:19	499	22	-8744	122	N	a-	1.2231	0.5981	-0.3706	196.3	-	-	18N	31E
1293	Jun 20	06:27:22	498	22	-8739	89	N	-t	1.3364	0.4330	-0.6207	193.7	-	-	22S	94W
1293	Jul 19	20:55:16	498	22	-8738	127	N	t-	-1.4919	0.1560	-0.9143	121.3	-	-	21S	50E
1293	Dec 15	02:14:36	497	22	-8733	94	P	-a	-0.8143	1.3677	0.3603	285.7	128.5	-	23N	31W
1294	Jun 09	12:43:28	496	22	-8727	99	P	-t	0.5205	1.9046	0.9015	324.5	191.7	-	23S	171E
1294	Dec 04	10:52:53	495	22	-8721	104	T-	-p	-0.1372	2.6390	1.5742	358.9	225.4	98.0	23N	162W
1295	May 30	01:59:31	494	22	-8715	109	T-	p-	-0.2581	2.3619	1.4066	318.7	207.4	84.6	23S	29W
1295	Nov 23	12:21:44	493	22	-8709	114	P	t-	0.5617	1.8793	0.7764	353.8	192.9	-	22N	174E
1296	Apr 19	11:43:01	493	22	-8704	81	Ne	-a	1.5336	0.0224	-0.9347	40.4	-	-	12S	174W
1296	May 18	18:58:26	492	22	-8703	119	P	a-	-0.9827	1.0258	0.0835	244.6	62.3	-	22S	76E
1296	Nov 11	11:38:15	491	22	-8697	124	N	t-	1.2283	0.6497	-0.4402	235.1	-	-	21N	176W
1297	Apr 09	01:24:29	491	22	-8692	91	P	-a	0.8611	1.2808	0.2753	285.2	116.3	-	10S	19W
1297	Oct 02	03:30:51	490	22	-8686	96	P	-a	-0.9276	1.1555	0.1566	269.3	87.6	-	6N	53W
1298	Mar 29	08:10:14	489	22	-8680	101	T+	pp	0.1286	2.6534	1.5912	365.5	230.0	100.6	6S	120W
1298	Sep 21	18:11:04	488	22	-8674	106	T-	-p	-0.1975	2.4752	1.5155	317.0	207.5	90.0	2N	87E
1299	Mar 18	08:46:32	487	22	-8668	111	P	t-	-0.6069	1.7880	0.7015	348.1	186.2	-	2S	128W
1299	Sep 11	10:36:33	486	22	-8662	116	P	a-	0.5077	1.9082	0.9443	304.4	184.8	-	1S	159W
1300	Feb 05	19:17:55	485	22	-8657	83	N	-h	1.5505	0.0331	-1.0068	53.2	-	-	15N	77E
1300	Mar 06	09:58:03	485	22	-8656	121	N	h-	-1.2988	0.5054	-0.5550	205.5	-	-	1N	146W

1300 Aug 01	12:33:37	484	22	-8651	88	N	-h	-1.4397	0.2305	-0.7976	138.9	-	-	17S	175E
1300 Aug 31	00:06:29	484	22	-8650	126	N	h-	1.2754	0.5212	-0.4854	196.6	-	-	5S	1W

14TH CENTURY CE

In the 14th century CE the total number of lunar eclipses was 231 lunar eclipses: 81 penumbral lunar eclipses, 73 partial lunar eclipses, 77 total lunar eclipses (36 central total lunar eclipses, 41 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
ECLIPSE															
1301 Jan 25	06:16:29	483	22	-8645	93	P	-a	0.7937	1.3957	0.4074	282.2	133.8	-	18N	88W
1301 Jul 21	16:15:34	482	22	-8639	98	P	-t	-0.7266	1.5589	0.4912	331.0	160.6	-	20S	120E
1302 Jan 14	21:35:51	481	21	-8633	103	T+	-p	0.1071	2.6456	1.6769	318.7	209.4	95.6	20N	41E
1302 Jul 10	16:46:03	480	21	-8627	108	T+	pp	0.0314	2.8320	1.7694	371.1	234.5	105.9	21S	112E
1303 Jan 04	12:41:25	479	21	-8621	113	P	a-	-0.5757	1.7991	0.8043	306.5	176.9	-	21N	174E
1303 Jun 29	21:27:59	478	21	-8615	118	P	h-	0.7905	1.4156	0.3997	301.8	140.2	-	22S	41E
1303 Dec 24	22:58:30	477	21	-8609	123	N	h-	-1.3180	0.4654	-0.5856	192.9	-	-	22N	18E
1304 May 20	02:06:58	476	21	-8604	90	N	-a	-1.0344	0.9336	-0.0142	237.4	-	-	22S	31W
1304 Jun 18	09:25:43	476	21	-8603	128	Nb	a-	1.4897	0.1061	-0.8572	88.5	-	-	22S	139W
1304 Nov 13	06:45:30	475	21	-8598	95	P	-t	0.9781	1.1158	0.0119	298.6	27.0	-	21N	103W
1305 May 09	19:16:35	475	21	-8592	100	T	-p	-0.3054	2.2712	1.3235	313.0	202.8	77.1	20S	72E
1305 Nov 02	06:55:15	474	21	-8586	105	T	-p	0.2773	2.3874	1.3117	361.1	221.4	81.5	17N	106W
1306 Apr 29	10:13:29	473	21	-8580	110	T	a-	0.4499	2.0267	1.0381	321.8	196.9	29.9	16S	152W
1306 Oct 22	13:35:31	472	21	-8574	115	T	a-	-0.4370	2.0647	1.0477	327.7	198.4	33.4	13N	154E
1307 Apr 18	18:50:00	471	21	-8568	120	N	t-	1.2554	0.5777	-0.4684	217.0	-	-	12S	79E
1307 Sep 12	17:57:22	470	21	-8563	87	N	-a	1.4952	0.0916	-0.8628	80.3	-	-	0N	90E
1307 Oct 12	03:00:18	470	21	-8562	125	N	a-	-1.1019	0.8211	-0.1488	226.5	-	-	9N	46W
1308 Mar 08	03:50:38	469	21	-8557	92	P	-t	-0.9050	1.2407	0.1549	308.0	95.0	-	1N	54W

1308	Sep 01	10:07:00	468	21	-8551	97	P	-a	0.8267	1.3267	0.3553	276.0	125.9	-	5S	151W
1309	Feb 25	06:25:36	467	21	-8545	102	T-	pp	-0.1623	2.5845	1.5364	354.9	224.1	96.5	6N	91W
1309	Aug 21	22:07:58	466	21	-8539	107	T+	pp	0.1025	2.6801	1.6599	347.8	223.4	100.5	9S	30E
1310	Feb 14	16:04:15	465	21	-8533	112	P	a-	0.5549	1.8372	0.8424	310.6	181.3	-	11N	125E
1310	Aug 11	03:04:18	464	21	-8527	117	P	t-	-0.6707	1.6607	0.5948	335.4	172.8	-	14S	43W
1311	Jan 05	20:47:28	464	21	-8522	84	N	-a	-1.4417	0.1989	-0.7736	117.8	-	-	20N	53E
1311	Feb 04	06:58:27	463	21	-8521	122	N	a-	1.2090	0.6225	-0.3435	199.6	-	-	15N	98W
1311	Jul 01	13:00:32	463	21	-8516	89	N	-t	1.4161	0.2857	-0.7661	159.0	-	-	21S	168E
1311	Jul 31	03:29:36	462	21	-8515	127	N	t-	-1.4137	0.3000	-0.7713	165.9	-	-	18S	49W
1311	Dec 26	10:55:52	462	21	-8510	94	P	-a	-0.8194	1.3594	0.3496	286.0	127.1	-	22N	161W
1312	Jun 19	19:43:42	461	21	-8504	99	P	-t	0.5971	1.7621	0.7625	316.5	180.0	-	23S	66E
1312	Dec 14	19:11:54	460	21	-8498	104	T-	-p	-0.1424	2.6310	1.5631	360.1	225.7	97.7	23N	74E
1313	Jun 09	09:22:03	459	21	-8492	109	T-	p-	-0.1829	2.4986	1.5459	320.1	210.5	92.7	24S	139W
1313	Dec 03	20:22:17	458	20	-8486	114	P	t-	0.5535	1.8952	0.7905	355.0	194.3	-	24N	55E
1314	May 30	02:28:14	457	20	-8480	119	P	a-	-0.9123	1.1547	0.2128	256.0	97.7	-	24S	36W
1314	Nov 22	19:41:02	456	20	-8474	124	N	t-	1.2153	0.6733	-0.4163	238.3	-	-	23N	64E
1315	Apr 20	08:48:57	455	20	-8469	91	P	-a	0.9245	1.1648	0.1585	276.5	90.0	-	13S	131W
1315	Oct 13	11:44:09	454	20	-8463	96	P	-a	-0.9511	1.1122	0.1133	264.7	74.8	-	10N	177W
1316	Apr 08	15:14:48	454	20	-8457	101	T+	pp	0.1901	2.5401	1.4786	364.8	228.2	95.4	10S	133E
1316	Oct 02	02:28:16	453	20	-8451	106	T-	-p	-0.2301	2.4165	1.4547	315.9	205.8	86.5	6N	38W
1317	Mar 28	15:49:52	452	20	-8445	111	P	t-	-0.5517	1.8875	0.8047	352.7	195.8	-	7S	125E
1317	Sep 21	18:41:53	451	20	-8439	116	T	a-	0.4691	1.9814	1.0129	308.1	189.3	17.0	3N	79E
1318	Mar 17	17:26:55	450	20	-8433	121	N	h-	-1.2534	0.5856	-0.4687	218.6	-	-	3S	101E
1318	Aug 12	19:37:59	449	20	-8428	88	N	-h	-1.5095	0.1053	-0.9286	95.4	-	-	14S	69E
1318	Sep 11	07:44:42	449	20	-8427	126	N	h-	1.2321	0.6037	-0.4091	210.9	-	-	1S	116W
1319	Feb 05	14:49:03	448	20	-8422	93	P	-a	0.8062	1.3707	0.3867	279.6	130.5	-	14N	144E
1319	Aug 01	22:50:29	447	20	-8416	98	P	-t	-0.8064	1.4143	0.3432	321.3	137.5	-	17S	21E
1320	Jan 26	06:20:45	446	20	-8410	103	T+	-p	0.1171	2.6265	1.6594	318.4	209.2	95.2	17N	89W
1320	Jul 20	23:20:18	446	20	-8404	108	T-	pp	-0.0510	2.7959	1.7336	370.3	233.9	105.3	19S	13E
1321	Jan 14	21:22:14	445	20	-8398	113	P	a-	-0.5704	1.8092	0.8134	307.7	178.1	-	19N	44E
1321	Jul 10	04:25:19	444	20	-8392	118	P	h-	0.7106	1.5608	0.5474	310.3	159.8	-	21S	64W
1322	Jan 04	07:22:05	443	20	-8386	123	N	h-	-1.3165	0.4693	-0.5839	194.3	-	-	21N	107W
1322	May 31	09:35:15	442	20	-8381	90	N	-a	-1.1029	0.8069	-0.1386	223.2	-	-	24S	143W
1322	Jun 29	16:45:25	442	20	-8380	128	N	a-	1.4141	0.2437	-0.7174	132.1	-	-	21S	111E
1322	Nov 24	14:40:58	441	20	-8375	95	Nx	-t	0.9897	1.0952	-0.0101	296.6	-	-	23N	139E
1323	May 21	02:48:06	440	20	-8369	100	T	-a	-0.3752	2.1431	1.1954	310.1	198.0	62.6	22S	41W
1323	Nov 13	14:59:31	439	20	-8363	105	T	-p	0.2897	2.3644	1.2891	359.7	220.0	79.0	20N	134E
1324	May 09	17:31:30	439	20	-8357	110	T	p-	0.3824	2.1514	1.1613	327.1	204.1	59.4	19S	98E
1324	Nov 01	21:57:29	438	20	-8351	115	T	a-	-0.4206	2.0945	1.0782	327.7	199.6	42.3	17N	29E
1325	Apr 29	01:47:01	437	20	-8345	120	N	t-	1.1909	0.6964	-0.3502	236.2	-	-	16S	26W

1325	Sep 23	02:08:31	436	20	-8340	87	Ne	-a	1.5302	0.0287	-0.9284	45.2	-	-	5N	33W
1325	Oct 22	11:30:14	436	20	-8339	125	N	a-	-1.0802	0.8613	-0.1097	230.7	-	-	13N	174W
1326	Mar 19	11:03:37	435	20	-8334	92	P	-t	-0.9512	1.1536	0.0723	299.1	65.6	-	3S	163W
1326	Sep 12	18:02:06	434	20	-8328	97	P	-a	0.8726	1.2451	0.2685	270.8	111.1	-	0S	89E
1327	Mar 08	14:08:31	433	20	-8322	102	T-	pp	-0.1974	2.5167	1.4750	352.3	222.1	93.1	2N	152E
1327	Sep 02	05:31:39	433	20	-8316	107	T+	-p	0.1581	2.5812	1.5546	348.6	222.3	96.8	5S	82W
1328	Feb 26	00:18:39	432	20	-8310	112	P	a-	0.5279	1.8840	0.8947	311.3	184.7	-	7N	0E
1328	Aug 21	09:56:12	431	20	-8304	117	P	t-	-0.6051	1.7833	0.7126	343.4	185.8	-	10S	147W
1329	Jan 16	05:34:57	430	20	-8299	84	N	-a	-1.4497	0.1838	-0.7881	113.5	-	-	18N	79W
1329	Feb 14	15:30:40	430	20	-8298	122	N	a-	1.1897	0.6565	-0.3066	204.1	-	-	11N	133E
1329	Jul 11	19:37:12	429	20	-8293	89	N	-t	1.4930	0.1440	-0.9064	114.0	-	-	20S	69E
1329	Aug 10	10:10:55	429	20	-8292	127	N	t-	-1.3404	0.4352	-0.6374	197.2	-	-	14S	150W
1330	Jan 05	19:35:29	428	20	-8287	94	P	-a	-0.8250	1.3500	0.3384	286.2	125.6	-	21N	70E
1330	Jul 01	02:46:04	427	20	-8281	99	P	-t	0.6729	1.6216	0.6250	307.7	166.1	-	22S	39W
1330	Dec 26	03:30:38	427	20	-8275	104	T-	-p	-0.1470	2.6237	1.5533	361.2	226.1	97.5	23N	49W
1331	Jun 20	16:44:31	426	20	-8269	109	T-	pp	-0.1073	2.6363	1.6855	320.7	212.4	97.6	23S	111E
1331	Dec 15	04:24:47	425	20	-8263	114	P	t-	0.5468	1.9080	0.8024	355.9	195.5	-	24N	64W
1332	Jun 09	09:55:08	424	20	-8257	119	P	a-	-0.8397	1.2881	0.3459	266.6	122.3	-	24S	147W
1332	Dec 03	03:48:25	423	20	-8251	124	N	t-	1.2054	0.6910	-0.3976	240.5	-	-	24N	57W
1333	Apr 30	16:06:07	422	20	-8246	91	P	-a	0.9930	1.0398	0.0323	265.8	41.5	-	16S	119E
1333	Oct 23	20:04:49	422	20	-8240	96	P	-a	-0.9693	1.0788	0.0801	260.9	63.0	-	13N	57E
1334	Apr 19	22:12:08	421	20	-8234	101	T+	-p	0.2569	2.4174	1.3563	363.4	225.1	86.7	14S	28E
1334	Oct 13	10:52:52	420	20	-8228	106	T-	-p	-0.2565	2.3690	1.4054	315.0	204.3	83.1	10N	165W
1335	Apr 08	22:44:59	419	20	-8222	111	P	t-	-0.4894	1.9999	0.9209	357.2	205.1	-	11S	20E
1335	Oct 03	02:54:03	418	20	-8216	116	T	p-	0.4365	2.0436	1.0704	311.2	192.8	39.1	7N	45W
1336	Mar 28	00:47:24	417	20	-8210	121	N	h-	-1.2003	0.6799	-0.3682	232.3	-	-	7S	10W
1336	Sep 21	15:30:29	416	20	-8204	126	N	h-	1.1953	0.6745	-0.3447	222.4	-	-	4N	126E
1337	Feb 15	23:13:22	416	20	-8199	93	P	-a	0.8261	1.3318	0.3525	276.0	125.0	-	10N	17E
1337	Aug 12	05:32:43	415	20	-8193	98	P	-t	-0.8797	1.2815	0.2067	311.1	109.0	-	13S	80W
1338	Feb 05	14:59:08	414	20	-8187	103	T+	-p	0.1328	2.5968	1.6315	318.1	209.0	94.5	13N	141E
1338	Aug 01	06:00:22	413	20	-8181	108	T-	pp	-0.1291	2.6525	1.5901	368.5	231.8	101.4	16S	87W
1339	Jan 26	05:58:06	412	20	-8175	113	P	a-	-0.5615	1.8258	0.8294	309.3	179.7	-	16N	84W
1339	Jul 21	11:26:39	412	20	-8169	118	P	h-	0.6328	1.7027	0.6913	317.2	174.9	-	18S	169W
1340	Jan 15	15:41:46	411	20	-8163	123	N	h-	-1.3126	0.4771	-0.5776	196.4	-	-	18N	129E
1340	Jun 10	17:00:14	410	20	-8158	90	N	-a	-1.1743	0.6750	-0.2688	206.5	-	-	25S	107E
1340	Jul 10	00:06:37	410	20	-8157	128	N	a-	1.3389	0.3810	-0.5786	162.6	-	-	20S	1E
1340	Dec 04	22:41:43	409	20	-8152	95	Nx	-t	0.9970	1.0821	-0.0239	295.2	-	-	24N	20E
1341	May 31	10:15:28	408	20	-8146	100	T	-a	-0.4482	2.0095	1.0613	306.5	191.7	36.6	23S	153W
1341	Nov 23	23:09:45	408	20	-8140	105	T	-p	0.2979	2.3487	1.2745	358.3	218.9	77.2	22N	12E
1342	May 21	00:44:42	407	20	-8134	110	T	p-	0.3115	2.2824	1.2905	331.9	210.4	76.6	21S	10W

1342	Nov 13	06:26:31	406	20	-8128	115	T	a-	-0.4092	2.1149	1.0996	327.3	200.1	47.3	20N	98W
1343	May 10	08:36:43	405	20	-8122	120	N	t-	1.1209	0.8252	-0.2221	254.6	-	-	18S	129W
1343	Nov 02	20:06:54	404	20	-8116	125	N	a-	-1.0640	0.8916	-0.0804	233.8	-	-	16N	56E
1344	Mar 29	18:09:21	404	20	-8111	92	Nx	-t	-1.0035	1.0553	-0.0212	288.4	-	-	8S	90E
1344	Sep 23	02:03:43	403	20	-8105	97	P	-a	0.9124	1.1749	0.1928	266.1	95.4	-	4N	32W
1345	Mar 18	21:44:38	402	20	-8099	102	T-	pp	-0.2390	2.4373	1.4020	349.1	219.6	88.1	3S	37E
1345	Sep 12	13:02:45	401	20	-8093	107	T+	-p	0.2067	2.4953	1.4623	349.2	220.8	92.0	1S	164E
1346	Mar 08	08:26:54	400	20	-8087	112	P	a-	0.4952	1.9412	0.9574	312.4	188.5	-	2N	123W
1346	Sep 01	16:54:25	399	20	-8081	117	P	t-	-0.5451	1.8958	0.8203	350.1	195.9	-	6S	107E
1347	Jan 27	14:17:24	399	20	-8076	84	N	-a	-1.4618	0.1612	-0.8099	106.6	-	-	15N	151E
1347	Feb 25	23:56:16	399	20	-8075	122	N	a-	1.1651	0.7002	-0.2599	209.7	-	-	7N	6E
1347	Jul 23	02:19:25	398	20	-8070	89	Ne	-t	1.5654	0.0106	-1.0387	31.2	-	-	17S	32W
1347	Aug 21	16:59:57	398	20	-8069	127	N	t-	-1.2726	0.5603	-0.5138	220.9	-	-	11S	107E
1348	Jan 17	04:09:47	397	20	-8064	94	P	-a	-0.8347	1.3331	0.3201	285.8	122.9	-	18N	58W
1348	Jul 11	09:52:28	396	20	-8058	99	P	-h	0.7460	1.4862	0.4920	298.2	150.0	-	20S	145W
1349	Jan 05	11:45:37	395	20	-8052	104	T-	-p	-0.1541	2.6116	1.5396	362.2	226.3	97.1	21N	172W
1349	Jul 01	00:09:17	395	20	-8046	109	T-	pp	-0.0330	2.7718	1.8224	320.7	213.1	99.8	23S	0E
1349	Dec 25	12:25:45	394	20	-8040	114	P	t-	0.5390	1.9223	0.8166	356.7	196.8	-	23N	177E
1350	Jun 20	17:21:44	393	20	-8034	119	P	a-	-0.7670	1.4219	0.4787	276.1	141.3	-	24S	102E
1350	Dec 14	11:59:00	392	20	-8028	124	N	h-	1.1976	0.7043	-0.3825	241.9	-	-	25N	178W
1351	May 11	23:14:18	392	20	-8023	91	N	-h	1.0676	0.9037	-0.1053	252.3	-	-	19S	12E
1351	Jun 10	08:50:40	391	20	-8022	129	Nb	h-	-1.5475	0.0078	-0.9709	24.7	-	-	25S	131W
1351	Nov 04	04:34:06	391	20	-8017	96	P	-a	-0.9812	1.0569	0.0585	258.2	53.8	-	17N	70W
1352	Apr 30	04:59:25	390	20	-8011	101	T	-t	0.3309	2.2815	1.2206	360.8	220.3	71.9	17S	74W
1352	Oct 23	19:25:32	389	20	-8005	106	T	-p	-0.2765	2.3334	1.3678	314.3	203.0	80.2	14N	66E
1353	Apr 19	05:31:57	388	20	-7999	111	T	t-	-0.4202	2.1251	1.0497	361.5	213.6	36.4	14S	82W
1353	Oct 13	11:14:08	388	20	-7993	116	T	p-	0.4110	2.0927	1.1148	313.7	195.4	49.3	11N	171W
1354	Apr 08	08:02:40	387	20	-7987	121	N	h-	-1.1419	0.7840	-0.2580	245.8	-	-	11S	120W
1354	Oct 02	23:21:53	386	20	-7981	126	N	h-	1.1638	0.7356	-0.2900	231.9	-	-	8N	7E
1355	Feb 27	07:33:10	385	20	-7976	93	P	-a	0.8503	1.2850	0.3104	271.7	117.8	-	6N	108W
1355	Aug 23	12:20:15	384	20	-7970	98	P	-t	-0.9483	1.1576	0.0790	300.3	68.7	-	10S	177E
1356	Feb 16	23:31:19	384	20	-7964	103	T+	-p	0.1535	2.5578	1.5946	317.7	208.5	93.3	10N	12E
1356	Aug 11	12:47:54	383	20	-7958	108	T-	pp	-0.2016	2.5196	1.4569	366.0	228.5	94.4	13S	170E
1357	Feb 05	14:27:25	382	20	-7952	113	P	a-	-0.5480	1.8509	0.8542	311.2	182.1	-	13N	148E
1357	Jul 31	18:35:45	381	20	-7946	118	P	a-	0.5604	1.8347	0.8249	322.6	186.1	-	16S	84E
1358	Jan 25	23:54:38	381	20	-7940	123	N	t-	-1.3041	0.4933	-0.5625	200.0	-	-	15N	6E
1358	Jun 22	00:27:19	380	20	-7935	90	N	-a	-1.2442	0.5462	-0.3965	187.9	-	-	25S	5W
1358	Jul 21	07:33:35	380	20	-7934	128	N	a-	1.2676	0.5113	-0.4473	185.6	-	-	18S	111W
1358	Dec 16	06:43:06	379	20	-7929	95	Nx	-t	1.0040	1.0694	-0.0366	293.7	-	-	24N	99W
1359	Jun 11	17:39:45	378	20	-7923	100	P	-a	-0.5233	1.8724	0.9229	302.0	183.6	-	24S	97E

1359	Dec 05	07:24:16	378	20	-7917	105	T	-p	0.3034	2.3378	1.2654	357.0	218.0	76.0	24N	111W
1360	May 31	07:51:54	377	20	-7911	110	T+	pp	0.2362	2.4217	1.4273	336.3	215.6	88.6	23S	117W
1360	Nov 23	15:00:37	376	20	-7905	115	T	a-	-0.4013	2.1286	1.1147	326.7	200.4	50.3	22N	134E
1361	May 20	15:19:09	375	20	-7899	120	N	t-	1.0454	0.9644	-0.0842	272.1	-	-	21S	131E
1361	Nov 13	04:49:53	374	20	-7893	125	N	a-	-1.0526	0.9129	-0.0598	235.8	-	-	19N	74W
1362	Apr 10	01:06:43	374	20	-7888	92	N	-t	-1.0626	0.9446	-0.1273	275.3	-	-	12S	16W
1362	Oct 04	10:12:05	373	20	-7882	97	P	-a	0.9460	1.1159	0.1285	262.0	78.7	-	8N	155W
1363	Mar 30	05:13:28	372	20	-7876	102	T	-p	-0.2873	2.3453	1.3165	345.5	216.1	80.6	7S	76W
1363	Sep 23	20:40:20	371	20	-7870	107	T+	-p	0.2489	2.4211	1.3817	349.6	219.1	86.5	4N	49E
1364	Mar 18	16:26:29	371	20	-7864	112	T	a-	0.4548	2.0125	1.0342	313.9	192.8	27.8	2S	116E
1364	Sep 12	00:00:41	370	20	-7858	117	P	t-	-0.4921	1.9957	0.9153	355.5	203.7	-	2S	0W
1365	Feb 06	22:54:22	369	20	-7853	84	N	-a	-1.4782	0.1306	-0.8394	96.3	-	-	11N	21E
1365	Mar 08	08:14:20	369	20	-7852	122	N	a-	1.1345	0.7547	-0.2025	216.3	-	-	3N	119W
1365	Aug 31	23:57:38	368	20	-7846	127	N	t-	-1.2109	0.6744	-0.4012	239.4	-	-	6S	2E
1366	Jan 27	12:39:15	368	20	-7841	94	P	-a	-0.8476	1.3098	0.2959	284.9	118.9	-	15N	175E
1366	Jul 22	17:03:59	367	20	-7835	99	P	-h	0.8156	1.3575	0.3652	288.2	131.3	-	18S	107E
1367	Jan 16	19:57:31	366	20	-7829	104	T-	-p	-0.1629	2.5960	1.5228	363.0	226.5	96.5	19N	66E
1367	Jul 12	07:35:20	365	20	-7823	109	T+	pp	0.0404	2.7580	1.8093	320.1	212.7	99.5	21S	111W
1368	Jan 05	20:26:13	365	20	-7817	114	P	t-	0.5310	1.9367	0.8316	357.4	198.1	-	22N	58E
1368	Jul 01	00:48:21	364	20	-7811	119	P	a-	-0.6949	1.5551	0.6104	284.6	156.4	-	23S	10W
1368	Dec 24	20:09:40	363	20	-7805	124	N	h-	1.1895	0.7180	-0.3663	243.2	-	-	24N	60E
1369	May 22	06:17:42	362	20	-7800	91	N	-h	1.1449	0.7629	-0.2482	236.1	-	-	21S	94W
1369	Jun 20	16:01:23	362	20	-7799	129	N	h-	-1.4793	0.1346	-0.8474	101.7	-	-	25S	122E
1369	Nov 14	13:09:01	362	20	-7794	96	P	-a	-0.9887	1.0427	0.0450	256.1	47.2	-	19N	161E
1370	May 11	11:41:19	361	20	-7788	101	T	-t	0.4088	2.1387	1.0778	357.1	213.4	44.8	19S	175W
1370	Nov 04	04:03:29	360	20	-7782	106	T	-p	-0.2920	2.3058	1.3384	313.7	201.9	77.6	17N	63W
1371	Apr 30	12:13:01	359	20	-7776	111	T	t-	-0.3458	2.2597	1.1879	365.1	220.9	67.6	17S	177E
1371	Oct 24	19:40:28	359	20	-7770	116	T	p-	0.3912	2.1314	1.1489	315.9	197.4	55.6	15N	62E
1372	Apr 18	15:09:50	358	20	-7764	121	N	h-	-1.0758	0.9022	-0.1338	259.4	-	-	15S	133E
1372	Oct 13	07:21:35	357	20	-7758	126	N	h-	1.1396	0.7830	-0.2487	239.2	-	-	12N	113W
1373	Mar 09	15:44:10	357	20	-7753	93	P	-a	0.8822	1.2241	0.2543	266.2	107.3	-	2N	128E
1373	Sep 02	19:16:40	356	20	-7747	98	Nx	-t	-1.0091	1.0480	-0.0345	289.5	-	-	6S	72E
1374	Feb 27	07:55:12	355	20	-7741	103	T+	-p	0.1809	2.5064	1.5453	317.1	207.8	91.3	5N	114W
1374	Aug 22	19:44:10	354	20	-7735	108	T-	pp	-0.2675	2.3991	1.3358	363.0	224.2	84.8	9S	66E
1375	Feb 16	22:49:13	354	20	-7729	113	P	a-	-0.5288	1.8861	0.8893	313.6	185.1	-	9N	22E
1375	Aug 12	01:50:37	353	20	-7723	118	P	a-	0.4918	1.9601	0.9513	326.8	194.8	-	12S	26W
1376	Feb 06	08:01:16	352	20	-7717	123	N	t-	-1.2912	0.5172	-0.5390	204.9	-	-	12N	116W
1376	Jul 02	07:54:02	351	20	-7712	90	N	-a	-1.3147	0.4167	-0.5257	166.1	-	-	24S	116W
1376	Jul 31	15:04:46	351	20	-7711	128	N	a-	1.1990	0.6370	-0.3213	204.1	-	-	15S	136E
1376	Dec 26	14:45:04	351	20	-7706	95	Nx	-t	1.0105	1.0570	-0.0481	292.2	-	-	24N	142E

1377	Jun 22	01:02:56	350	20	-7700	100	P	-a	-0.5989	1.7346	0.7832	296.6	173.5	-	24S	14W
1377	Dec 15	15:42:18	349	20	-7694	105	T	-p	0.3069	2.3302	1.2601	355.7	217.3	75.2	24N	126E
1378	Jun 11	14:55:50	349	20	-7688	110	T+	pp	0.1592	2.5646	1.5673	339.9	219.6	96.7	23S	137E
1378	Dec 04	23:38:52	348	20	-7682	115	T	a-	-0.3963	2.1368	1.1248	325.9	200.4	52.2	23N	6E
1379	May 31	21:57:12	347	20	-7676	120	P	t-	0.9666	1.1098	0.0597	288.3	58.8	-	22S	32E
1379	Nov 24	13:37:18	346	20	-7670	125	N	a-	-1.0450	0.9269	-0.0462	237.0	-	-	21N	155E
1380	Apr 20	07:57:13	346	20	-7665	92	N	-t	-1.1272	0.8237	-0.2435	259.5	-	-	15S	119W
1380	Oct 14	18:27:34	345	20	-7659	97	P	-a	0.9731	1.0688	0.0760	258.7	61.2	-	12N	80E
1381	Apr 09	12:36:48	344	20	-7653	102	T	-p	-0.3410	2.2437	1.2212	341.2	211.7	69.5	11S	172E
1381	Oct 04	04:24:43	344	20	-7647	107	T	-p	0.2846	2.3588	1.3130	349.9	217.3	80.5	8N	68W
1382	Mar 30	00:20:25	343	20	-7641	112	T	a-	0.4091	2.0937	1.1207	315.4	197.0	50.8	6S	3W
1382	Sep 23	07:15:10	342	20	-7635	117	P	t-	-0.4459	2.0827	0.9976	360.0	209.7	-	3N	110W
1383	Feb 18	07:23:53	341	20	-7630	84	N	-a	-1.5005	0.0890	-0.8797	79.9	-	-	7N	107W
1383	Mar 19	16:24:18	341	20	-7629	122	N	a-	1.0975	0.8213	-0.1330	224.0	-	-	2S	117E
1383	Sep 12	07:04:43	341	20	-7623	127	N	t-	-1.1560	0.7760	-0.3013	254.0	-	-	2S	106W
1384	Feb 07	21:01:01	340	20	-7618	94	P	-a	-0.8661	1.2761	0.2616	283.2	112.7	-	12N	50E
1384	Aug 02	00:22:32	339	20	-7612	99	P	-a	0.8800	1.2388	0.2478	278.0	109.7	-	15S	3W
1385	Jan 27	04:01:22	339	20	-7606	104	T-	-p	-0.1775	2.5695	1.4958	363.6	226.5	95.3	16N	55W
1385	Jul 22	15:06:46	338	20	-7600	109	T+	pp	0.1095	2.6311	1.6824	318.9	211.4	97.1	18S	136E
1386	Jan 16	04:22:26	337	20	-7594	114	P	t-	0.5199	1.9563	0.8525	358.3	199.9	-	20N	61W
1386	Jul 12	08:15:55	336	20	-7588	119	P	a-	-0.6237	1.6868	0.7398	292.2	168.9	-	21S	121W
1387	Jan 05	04:20:22	336	20	-7582	124	N	h-	1.1809	0.7322	-0.3489	244.5	-	-	23N	61W
1387	Jun 02	13:14:52	335	20	-7577	91	N	-h	1.2258	0.6158	-0.3979	216.1	-	-	22S	162E
1387	Jul 01	23:09:52	335	20	-7576	129	N	h-	-1.4101	0.2635	-0.7223	141.3	-	-	24S	15E
1387	Nov 25	21:50:11	334	20	-7571	96	P	-a	-0.9921	1.0358	0.0393	254.8	44.0	-	21N	32E
1388	May 21	18:15:03	334	20	-7565	101	P	-t	0.4926	1.9851	0.9237	352.0	203.7	-	21S	87E
1388	Nov 14	12:48:25	333	20	-7559	106	T	-p	-0.3020	2.2882	1.3194	313.3	201.1	75.9	20N	166E
1389	May 10	18:48:41	332	20	-7553	111	T-	pp	-0.2665	2.4036	1.3350	368.0	226.8	85.6	20S	78E
1389	Nov 04	04:12:44	332	20	-7547	116	T	p-	0.3767	2.1600	1.1733	317.7	198.9	59.6	18N	66W
1390	Apr 29	22:13:48	331	20	-7541	121	Nx	h-	-1.0060	1.0274	-0.0029	271.9	-	-	18S	26E
1390	Oct 24	15:27:16	330	20	-7535	126	N	h-	1.1211	0.8200	-0.2176	245.0	-	-	16N	125E
1391	Mar 20	23:48:59	330	20	-7530	93	P	-a	0.9197	1.1529	0.1879	259.7	93.0	-	2S	6E
1391	Sep 14	02:19:55	329	20	-7524	98	N	-t	-1.0641	0.9491	-0.1373	278.8	-	-	1S	35W
1392	Mar 09	16:12:12	328	20	-7518	103	T+	-p	0.2141	2.4444	1.4854	316.2	206.7	88.4	1N	121E
1392	Sep 02	02:49:44	327	20	-7512	108	T	-p	-0.3265	2.2911	1.2271	359.6	219.4	72.4	5S	42W
1393	Feb 27	07:02:11	327	20	-7506	113	P	a-	-0.5029	1.9336	0.9369	316.4	189.0	-	5N	102W
1393	Aug 22	09:15:15	326	20	-7500	118	T	a-	0.4300	2.0729	1.0650	329.8	201.1	39.2	9S	138W
1394	Feb 16	15:59:16	325	20	-7494	123	N	t-	-1.2718	0.5528	-0.5036	211.8	-	-	8N	125E
1394	Jul 13	15:23:49	325	20	-7489	90	N	-a	-1.3829	0.2917	-0.6510	140.5	-	-	22S	132E
1394	Aug 11	22:42:07	325	20	-7488	128	N	a-	1.1348	0.7549	-0.2035	219.1	-	-	12S	21E

1395 Jan 06	22:44:39	324	20	-7483	95	Nx	-t	1.0191	1.0402	-0.0632	290.1	-	-	22N	23E
1395 Jul 03	08:26:02	323	20	-7477	100	P	-a	-0.6743	1.5975	0.6435	290.3	161.2	-	23S	124W
1395 Dec 27	00:00:12	323	20	-7471	105	T	-p	0.3111	2.3210	1.2540	354.2	216.5	74.4	23N	3E
1396 Jun 21	21:56:39	322	20	-7465	110	T+	pp	0.0803	2.7111	1.7102	342.8	222.3	101.4	23S	33E
1396 Dec 15	08:19:15	321	20	-7459	115	T	a-	-0.3923	2.1430	1.1334	325.0	200.3	53.7	23N	123W
1397 Jun 11	04:31:34	321	20	-7453	120	P	t-	0.8851	1.2603	0.2081	303.1	107.8	-	23S	67W
1397 Dec 04	22:27:26	320	20	-7447	125	N	a-	-1.0395	0.9371	-0.0360	237.8	-	-	22N	23E
1398 May 01	14:41:53	319	20	-7442	92	N	-t	-1.1968	0.6938	-0.3690	240.5	-	-	19S	140E
1398 Oct 26	02:49:59	319	20	-7436	97	P	-a	0.9943	1.0326	0.0346	256.2	41.6	-	16N	45W
1399 Apr 20	19:52:46	318	20	-7430	102	T	-p	-0.4017	2.1292	1.1128	336.1	205.9	51.3	15S	62E
1399 Oct 15	12:16:33	317	20	-7424	107	T	-p	0.3135	2.3089	1.2570	350.4	215.6	74.6	12N	173E
1400 Apr 09	08:06:49	316	20	-7418	112	T	a-	0.3563	2.1880	1.2202	317.0	201.3	66.5	10S	121W
1400 Oct 03	14:38:34	316	20	-7412	117	T	t-	-0.4072	2.1560	1.0664	363.5	214.1	41.7	7N	138E

15TH CENTURY CE

In the 15th century CE the total number of lunar eclipses was 228 lunar eclipses: 80 penumbral lunar eclipses, 65 partial lunar eclipses, 83 total lunar eclipses (23 central total lunar eclipses, 60 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
	ECLIPSE														
1401 Feb 28	15:45:48	315	20	-7407	84	Ne	-a	-1.5288	0.0364	-0.9310	51.4	-	-	3N	127E
1401 Mar 30	00:26:40	315	20	-7406	122	N	a-	1.0542	0.8993	-0.0524	232.4	-	-	6S	5W
1401 Sep 22	14:22:14	314	20	-7400	127	N	t-	-1.1085	0.8639	-0.2150	265.3	-	-	2N	143E
1402 Feb 18	05:16:27	314	20	-7395	94	P	-a	-0.8892	1.2340	0.2191	280.6	104.0	-	8N	75W
1402 Aug 13	07:47:01	313	20	-7389	99	P	-a	0.9403	1.1277	0.1377	267.6	82.8	-	11S	115W
1403 Feb 07	12:00:01	312	20	-7383	104	T-	-p	-0.1957	2.5360	1.4623	364.0	226.2	93.6	12N	175W
1403 Aug 02	22:42:16	312	20	-7377	109	T+	-p	0.1755	2.5103	1.5612	317.2	209.1	92.7	15S	22E

1404	Jan 27	12:13:41	311	20	-7371	114	P	t-	0.5045	1.9835	0.8819	359.3	202.2	-	17N	178W
1404	Jul 22	15:46:34	310	20	-7365	119	P	a-	-0.5554	1.8136	0.8638	298.7	178.9	-	19S	126E
1405	Jan 15	12:28:22	310	20	-7359	124	N	h-	1.1693	0.7513	-0.3258	246.4	-	-	20N	178E
1405	Jun 12	20:10:09	309	20	-7354	91	N	-h	1.3072	0.4679	-0.5488	191.9	-	-	22S	59E
1405	Jul 12	06:20:19	309	20	-7353	129	N	h-	-1.3427	0.3894	-0.6007	170.5	-	-	22S	92W
1405	Dec 06	06:33:11	309	20	-7348	96	P	-a	-0.9947	1.0304	0.0354	253.6	41.7	-	22N	98W
1406	Jun 02	00:46:23	308	20	-7342	101	P	-t	0.5777	1.8293	0.7672	345.4	191.3	-	23S	11W
1406	Nov 25	21:36:49	307	20	-7336	106	T	-p	-0.3091	2.2757	1.3058	313.1	200.6	74.6	22N	35E
1407	May 22	01:19:27	307	20	-7330	111	T-	pp	-0.1827	2.5558	1.4901	370.1	231.2	97.2	22S	20W
1407	Nov 15	12:50:08	306	20	-7324	116	T	p-	0.3670	2.1798	1.1891	319.3	200.0	62.1	21N	165E
1408	May 10	05:12:15	305	20	-7318	121	P	h-	-0.9308	1.1627	0.1377	283.8	86.0	-	21S	78W
1408	Nov 03	23:39:07	304	20	-7312	126	N	h-	1.1081	0.8465	-0.1966	249.3	-	-	19N	2E
1409	Mar 31	07:45:12	304	20	-7307	93	P	-a	0.9647	1.0680	0.1075	251.6	71.0	-	7S	114W
1409	Sep 24	09:33:47	303	20	-7301	98	N	-t	-1.1102	0.8664	-0.2237	269.0	-	-	3N	144W
1410	Mar 21	00:20:43	303	20	-7295	103	T+	-p	0.2543	2.3696	1.4126	315.1	205.0	83.9	3S	3W
1410	Sep 13	10:04:25	302	20	-7289	108	T	-p	-0.3788	2.1957	1.1309	356.0	214.2	56.6	1S	151W
1411	Mar 10	15:06:35	301	20	-7283	113	P	a-	-0.4705	1.9930	0.9964	319.6	193.3	-	0N	136E
1411	Sep 02	16:48:07	301	20	-7277	118	T	a-	0.3741	2.1754	1.1679	332.0	205.8	60.8	5S	108E
1412	Feb 27	23:47:37	300	20	-7271	123	N	t-	-1.2454	0.6012	-0.4550	220.4	-	-	4N	7E
1412	Jul 23	22:56:30	299	20	-7266	90	N	-a	-1.4488	0.1712	-0.7724	108.8	-	-	19S	19E
1412	Aug 22	06:26:33	299	20	-7265	128	N	a-	1.0759	0.8633	-0.0957	231.3	-	-	8S	96W
1413	Jan 17	06:41:55	299	20	-7260	95	Nx	-t	1.0299	1.0193	-0.0817	287.4	-	-	20N	95W
1413	Jul 13	15:50:25	298	20	-7254	100	P	-a	-0.7480	1.4640	0.5068	283.3	146.5	-	21S	125E
1414	Jan 06	08:17:51	297	20	-7248	105	T	-p	0.3162	2.3096	1.2464	352.6	215.7	73.3	22N	120W
1414	Jul 03	04:57:13	297	20	-7242	110	T+	pp	0.0020	2.8567	1.8518	344.9	223.7	103.1	22S	72W
1414	Dec 26	17:01:05	296	20	-7236	115	T	a-	-0.3890	2.1476	1.1410	324.1	200.2	55.0	22N	107E
1415	Jun 22	11:03:04	295	20	-7230	120	P	t-	0.8016	1.4147	0.3602	316.5	139.0	-	23S	164W
1415	Dec 16	07:19:52	295	20	-7224	125	N	a-	-1.0358	0.9437	-0.0290	238.3	-	-	22N	109W
1416	May 11	21:22:19	294	20	-7219	92	N	-t	-1.2701	0.5572	-0.5014	217.8	-	-	21S	39E
1416	Jun 10	11:56:48	294	20	-7218	130	Nb	t-	1.5633	0.0239	-1.0441	48.0	-	-	22S	178W
1416	Nov 05	11:17:34	294	20	-7213	97	P	-a	1.0108	1.0048	0.0020	254.4	10.1	-	19N	172W
1417	May 01	03:05:20	293	20	-7207	102	P	-t	-0.4661	2.0081	0.9974	330.2	198.6	-	18S	46W
1417	Oct 25	20:15:05	292	20	-7201	107	T	-p	0.3364	2.2698	1.2123	350.9	214.3	68.9	16N	53E
1418	Apr 20	15:48:16	292	20	-7195	112	T	p-	0.2988	2.2912	1.3280	318.4	205.1	78.1	14S	123E
1418	Oct 14	22:09:19	291	20	-7189	117	T	t-	-0.3746	2.2179	1.1241	366.3	217.5	56.0	11N	25E
1419	Apr 10	08:21:38	290	20	-7183	122	P	a-	1.0049	0.9886	0.0393	241.4	42.9	-	10S	124W
1419	Oct 03	21:50:04	290	20	-7177	127	N	t-	-1.0688	0.9374	-0.1429	273.9	-	-	6N	31E
1420	Feb 29	13:20:53	289	20	-7172	94	P	-a	-0.9205	1.1766	0.1615	276.7	90.4	-	4N	163E
1420	Aug 23	15:21:03	289	20	-7166	99	P	-a	0.9934	1.0299	0.0405	257.6	45.4	-	7S	131E
1421	Feb 17	19:48:25	288	20	-7160	104	T-	-p	-0.2216	2.4883	1.4150	363.9	225.5	90.7	8N	67E

1421	Aug 13	06:24:21	287	20	-7154	109	T+	-p	0.2362	2.3993	1.4492	315.2	206.3	86.6	12S	94W
1422	Feb 06	19:57:59	287	20	-7148	114	P	t-	0.4835	2.0207	0.9218	360.5	205.2	-	13N	66E
1422	Aug 02	23:20:40	286	20	-7142	119	P	a-	-0.4903	1.9348	0.9816	304.4	187.1	-	16S	12E
1423	Jan 26	20:33:03	285	20	-7136	124	N	h-	1.1545	0.7763	-0.2962	249.0	-	-	17N	57E
1423	Jun 24	03:00:23	285	20	-7131	91	N	-h	1.3913	0.3154	-0.7049	160.5	-	-	22S	43W
1423	Jul 23	13:30:11	285	20	-7130	129	N	h-	-1.2755	0.5151	-0.4799	194.6	-	-	20S	160E
1423	Dec 17	15:19:59	284	20	-7125	96	P	-a	-0.9947	1.0293	0.0363	252.8	42.1	-	22N	132E
1424	Jun 12	07:13:00	283	20	-7119	101	P	-t	0.6657	1.6685	0.6052	337.2	174.8	-	23S	107W
1424	Dec 06	06:28:40	283	20	-7113	106	T	-p	-0.3133	2.2683	1.2975	313.0	200.3	73.8	23N	97W
1425	Jun 01	07:48:16	282	20	-7107	111	T-	pp	-0.0970	2.7118	1.6487	371.0	233.8	103.8	23S	116W
1425	Nov 25	21:31:50	282	20	-7101	116	T	p-	0.3618	2.1913	1.1970	320.6	200.7	63.3	23N	36E
1426	May 21	12:09:01	281	20	-7095	121	P	h-	-0.8529	1.3032	0.2832	294.4	120.4	-	23S	178E
1426	Nov 15	07:55:19	280	20	-7089	126	N	h-	1.0993	0.8652	-0.1830	252.6	-	-	22N	121W
1427	Apr 11	15:36:22	280	20	-7084	93	P	-a	1.0144	0.9747	0.0185	242.2	29.8	-	10S	127E
1427	May 10	23:39:21	280	20	-7083	131	Nb	a-	-1.5428	0.0112	-0.9572	29.1	-	-	21S	5E
1427	Oct 05	16:55:32	279	20	-7078	98	N	-t	-1.1500	0.7952	-0.2984	259.8	-	-	7N	104E
1428	Mar 31	08:21:13	279	20	-7072	103	T	-p	0.3013	2.2826	1.3273	313.5	202.6	77.2	7S	124W
1428	Sep 23	17:29:52	278	20	-7066	108	T	-t	-0.4230	2.1149	1.0493	352.6	209.2	35.6	3N	96E
1429	Mar 20	23:02:09	277	20	-7060	113	T	p-	-0.4313	2.0649	1.0683	323.1	198.1	39.5	4S	17E
1429	Sep 13	00:30:30	277	20	-7054	118	T	a-	0.3251	2.2651	1.2579	333.3	209.1	72.8	0S	8W
1430	Mar 10	07:26:28	276	20	-7048	123	N	t-	-1.2119	0.6625	-0.3934	230.6	-	-	0S	109W
1430	Aug 04	06:34:42	275	20	-7043	90	Ne	-a	-1.5105	0.0587	-0.8863	64.4	-	-	16S	96W
1430	Sep 02	14:18:53	275	20	-7042	128	P	a-	1.0230	0.9608	0.0008	241.2	6.3	-	4S	145E
1431	Jan 28	14:33:22	275	20	-7037	95	N	-t	1.0455	0.9891	-0.1088	283.5	-	-	17N	147E
1431	Jul 24	23:16:40	274	20	-7031	100	P	-a	-0.8196	1.3345	0.3736	275.5	128.6	-	19S	14E
1432	Jan 17	16:32:38	274	20	-7025	105	T	-p	0.3247	2.2919	1.2331	350.7	214.6	71.5	19N	117E
1432	Jul 13	11:58:15	273	20	-7019	110	T-	pp	-0.0751	2.7250	1.7155	346.2	223.7	101.9	20S	177W
1433	Jan 06	01:40:44	272	20	-7013	115	T	p-	-0.3829	2.1569	1.1538	323.2	200.4	57.1	21N	21W
1433	Jul 02	17:34:54	272	20	-7007	120	P	t-	0.7184	1.5688	0.5114	328.3	162.2	-	22S	98E
1433	Dec 26	16:12:38	271	20	-7001	125	N	a-	-1.0320	0.9502	-0.0216	238.8	-	-	22N	119E
1434	May 23	03:58:54	271	20	-6996	92	N	-t	-1.3467	0.4147	-0.6400	189.8	-	-	23S	60W
1434	Jun 21	18:19:58	270	20	-6995	130	N	t-	1.4768	0.1821	-0.8850	130.6	-	-	22S	86E
1434	Nov 16	19:50:40	270	20	-6990	97	N	-a	1.0224	0.9858	-0.0215	253.5	-	-	22N	60E
1435	May 12	10:13:09	269	20	-6984	102	P	-t	-0.5356	1.8779	0.8726	323.3	189.4	-	21S	153W
1435	Nov 06	04:20:14	269	20	-6978	107	T	-a	0.3529	2.2422	1.1793	351.6	213.3	64.2	19N	68W
1436	Apr 30	23:23:10	268	20	-6972	112	T+	p-	0.2351	2.4057	1.4469	319.7	208.4	87.2	17S	9E
1436	Oct 25	05:49:22	268	20	-6966	117	T	p-	-0.3498	2.2653	1.1678	368.5	219.9	64.1	15N	90W
1437	Apr 20	16:10:27	267	20	-6960	122	P	a-	0.9506	1.0872	0.1398	250.4	80.0	-	14S	118E
1437	Oct 14	05:26:52	266	20	-6954	127	N	t-	-1.0355	0.9990	-0.0824	280.5	-	-	10N	84W
1438	Mar 11	21:17:53	266	20	-6949	94	P	-a	-0.9573	1.1093	0.0940	271.5	69.8	-	1S	43E

1438	Sep 03	23:02:38	265	20	-6943	99	N	-a	1.0411	0.9423	-0.0469	248.0	-	-	3S	14E
1439	Mar 01	03:28:52	265	20	-6937	104	T-	-p	-0.2536	2.4293	1.3568	363.5	224.2	86.2	4N	48W
1439	Aug 24	14:12:04	264	20	-6931	109	T	-p	0.2925	2.2968	1.3452	313.0	202.9	78.7	8S	148E
1440	Feb 18	03:35:30	263	20	-6925	114	P	t-	0.4566	2.0684	0.9727	362.0	208.8	-	9N	49W
1440	Aug 13	07:00:01	263	20	-6919	119	T	a-	-0.4300	2.0474	1.0903	309.2	193.6	44.0	12S	103W
1441	Feb 06	04:31:32	262	20	-6913	124	N	h-	1.1338	0.8116	-0.2557	252.7	-	-	14N	63W
1441	Jul 04	09:52:10	262	20	-6908	91	N	-t	1.4728	0.1680	-0.8564	119.2	-	-	21S	146W
1441	Aug 02	20:45:01	262	20	-6907	129	N	t-	-1.2129	0.6328	-0.3675	214.2	-	-	16S	51E
1441	Dec 28	00:06:06	261	20	-6902	96	P	-a	-0.9956	1.0264	0.0359	251.9	41.8	-	22N	1E
1442	Jun 23	13:39:04	260	20	-6896	101	P	-t	0.7535	1.5081	0.4433	327.4	153.8	-	22S	157E
1442	Dec 17	15:21:19	260	20	-6890	106	T	-p	-0.3170	2.2617	1.2907	312.9	200.1	73.1	23N	131E
1443	Jun 12	14:15:50	259	20	-6884	111	T-	pp	-0.0099	2.8705	1.8097	370.8	234.6	106.2	24S	147E
1443	Dec 07	06:15:28	259	20	-6878	116	T	p-	0.3582	2.1994	1.2020	321.8	201.3	64.1	24N	94W
1444	May 31	19:03:16	258	20	-6872	121	P	h-	-0.7716	1.4501	0.4346	304.0	145.4	-	24S	75E
1444	Nov 25	16:15:48	257	20	-6866	126	N	h-	1.0946	0.8761	-0.1764	254.9	-	-	23N	115E
1445	Apr 21	23:20:32	257	20	-6861	93	N	-a	1.0703	0.8701	-0.0822	230.8	-	-	14S	11E
1445	May 21	07:02:24	257	20	-6860	131	N	a-	-1.4706	0.1417	-0.8227	101.9	-	-	23S	106W
1445	Oct 16	00:26:27	256	20	-6855	98	N	-t	-1.1823	0.7375	-0.3592	251.9	-	-	11N	9W
1446	Apr 11	16:14:00	256	20	-6849	103	T	-p	0.3545	2.1842	1.2303	311.4	199.2	67.0	11S	117E
1446	Oct 05	01:05:27	255	20	-6843	108	P	-t	-0.4596	2.0481	0.9819	349.3	204.4	-	8N	19W
1447	Apr 01	06:47:24	254	20	-6837	113	T	p-	-0.3843	2.1513	1.1545	326.9	203.2	58.1	8S	101W
1447	Sep 24	08:22:28	254	20	-6831	118	T	p-	0.2832	2.3420	1.3348	334.1	211.3	80.5	4N	127W
1448	Mar 20	14:55:07	253	20	-6825	123	N	t-	-1.1709	0.7375	-0.3180	242.2	-	-	5S	138E
1448	Sep 12	22:19:29	253	20	-6819	128	P	a-	0.9765	1.0468	0.0854	249.1	63.3	-	0N	24E
1449	Feb 07	22:19:14	252	20	-6814	95	N	-t	1.0659	0.9498	-0.1443	278.4	-	-	13N	30E
1449	Aug 04	06:47:04	252	20	-6808	100	P	-a	-0.8872	1.2125	0.2474	267.1	106.8	-	16S	99W
1450	Jan 28	00:45:06	251	20	-6802	105	T	-p	0.3359	2.2687	1.2149	348.6	213.3	69.0	16N	6W
1450	Jul 24	19:00:09	250	20	-6796	110	T-	pp	-0.1507	2.5888	1.5743	346.7	222.4	97.8	18S	77E
1451	Jan 17	10:19:21	250	20	-6790	115	T	p-	-0.3754	2.1687	1.1695	322.4	200.7	59.5	18N	150W
1451	Jul 14	00:07:27	249	20	-6784	120	P	t-	0.6358	1.7220	0.6614	338.6	180.3	-	20S	0E
1452	Jan 07	01:03:43	249	20	-6778	125	N	a-	-1.0269	0.9588	-0.0117	239.5	-	-	20N	13W
1452	Jun 02	10:34:08	248	20	-6773	92	N	-t	-1.4245	0.2702	-0.7811	154.8	-	-	24S	158W
1452	Jul 02	00:45:22	248	20	-6772	130	N	t-	1.3911	0.3391	-0.7275	175.5	-	-	21S	10W
1452	Nov 27	04:26:50	248	20	-6767	97	N	-a	1.0311	0.9717	-0.0396	252.9	-	-	24N	68W
1453	May 22	17:19:55	247	20	-6761	102	P	-t	-0.6067	1.7451	0.7446	315.6	178.3	-	23S	100E
1453	Nov 16	12:28:45	246	20	-6755	107	T	-a	0.3661	2.2203	1.1527	352.4	212.5	59.9	21N	171E
1454	May 12	06:55:10	246	20	-6749	112	T+	p-	0.1683	2.5264	1.5714	320.5	210.9	93.7	20S	104W
1454	Nov 05	13:35:41	245	20	-6743	117	T	p-	-0.3300	2.3032	1.2025	370.1	221.6	69.6	18N	153E
1455	May 01	23:51:26	245	20	-6737	122	P	a-	0.8898	1.1980	0.2521	259.8	105.8	-	17S	2E
1455	Oct 25	13:13:23	244	20	-6731	127	Nx	t-	-1.0094	1.0474	-0.0348	285.2	-	-	14N	159E

1456	Mar 22	05:03:29	244	20	-6726	94	P	-a	-1.0028	1.0258	0.0104	264.3	23.6	-	5S	74W
1456	Sep 14	06:54:30	243	20	-6720	99	N	-a	1.0812	0.8686	-0.1206	239.2	-	-	1N	105W
1457	Mar 11	10:57:50	242	20	-6714	104	T	-p	-0.2944	2.3539	1.2824	362.6	221.9	79.1	0S	162W
1457	Sep 03	22:08:19	242	20	-6708	109	T	-p	0.3420	2.2069	1.2534	310.8	199.3	69.5	4S	28E
1458	Feb 28	11:04:51	241	20	-6702	114	T	t-	0.4229	2.1284	1.0364	363.7	212.8	31.3	5N	162W
1458	Aug 24	14:43:47	241	20	-6696	119	T	p-	-0.3738	2.1527	1.1913	313.3	198.7	62.2	8S	140E
1459	Feb 17	12:25:18	240	20	-6690	124	N	h-	1.1085	0.8551	-0.2066	257.2	-	-	10N	178E
1459	Jul 15	16:42:40	240	20	-6685	91	Ne	-t	1.5537	0.0218	-1.0072	43.7	-	-	19S	111E
1459	Aug 14	04:02:34	240	20	-6684	129	N	t-	-1.1532	0.7452	-0.2609	231.0	-	-	13S	59W
1460	Jan 08	08:51:49	239	20	-6679	96	P	-a	-0.9977	1.0211	0.0336	250.7	40.4	-	20N	129W
1460	Jul 03	20:04:25	239	20	-6673	101	P	-t	0.8412	1.3481	0.2814	315.8	125.7	-	21S	61E
1460	Dec 28	00:14:43	238	20	-6667	106	T	-p	-0.3200	2.2561	1.2851	312.8	199.9	72.5	22N	1W
1461	Jun 22	20:44:41	237	20	-6661	111	T+	pp	0.0770	2.7464	1.6875	369.5	233.6	104.6	23S	50E
1461	Dec 17	14:59:58	237	20	-6655	116	T	p-	0.3560	2.2048	1.2048	323.0	201.9	64.6	24N	136E
1462	Jun 12	01:58:53	236	20	-6649	121	P	h-	-0.6902	1.5973	0.5859	312.1	164.3	-	24S	29W
1462	Dec 07	00:38:19	236	20	-6643	126	N	h-	1.0921	0.8826	-0.1738	256.6	-	-	24N	10W
1463	May 03	06:59:34	235	20	-6638	93	N	-a	1.1308	0.7573	-0.1916	217.4	-	-	17S	105W
1463	Jun 01	14:23:20	235	20	-6637	131	N	a-	-1.3959	0.2771	-0.6838	140.3	-	-	24S	144E
1463	Oct 27	08:05:15	235	20	-6632	98	N	-t	-1.2081	0.6914	-0.4080	245.1	-	-	15N	124W
1464	Apr 22	00:00:08	234	20	-6626	103	T	-a	0.4130	2.0765	1.1236	308.6	194.6	50.9	15S	0E
1464	Oct 15	08:50:45	234	20	-6620	108	P	-t	-0.4889	1.9946	0.9280	346.3	200.2	-	12N	135W
1465	Apr 11	14:24:27	233	20	-6614	113	T	p-	-0.3312	2.2488	1.2516	330.7	208.2	72.0	12S	144E
1465	Oct 04	16:24:26	232	20	-6608	118	T+	p-	0.2490	2.4046	1.3975	334.3	212.7	85.4	8N	111E
1466	Mar 31	22:14:10	232	20	-6602	123	N	t-	-1.1226	0.8259	-0.2292	254.7	-	-	9S	27E
1466	Sep 24	06:28:01	231	20	-6596	128	P	a-	0.9363	1.1213	0.1585	255.4	85.3	-	5N	99W
1467	Feb 19	05:57:50	231	20	-6591	95	N	-t	1.0924	0.8989	-0.1910	271.6	-	-	9N	85W
1467	Aug 15	14:22:16	230	20	-6585	100	P	-a	-0.9504	1.0989	0.1290	258.4	78.6	-	12S	146E
1468	Feb 08	08:50:29	230	20	-6579	105	T	-p	0.3539	2.2330	1.1848	346.1	211.4	64.5	12N	128W
1468	Aug 04	02:06:02	229	20	-6573	110	T-	-p	-0.2221	2.4606	1.4405	346.5	220.0	90.8	15S	29W
1469	Jan 27	18:53:16	229	20	-6567	115	T	p-	-0.3633	2.1888	1.1940	321.8	201.3	63.1	15N	81E
1469	Jul 24	06:42:44	228	20	-6561	120	P	t-	0.5557	1.8707	0.8066	347.4	194.6	-	17S	99W
1470	Jan 17	09:51:47	228	20	-6555	125	P	a-	-1.0194	0.9718	0.0030	240.6	11.9	-	18N	144W
1470	Jun 13	17:08:36	227	20	-6550	92	N	-t	-1.5032	0.1241	-0.9241	106.0	-	-	25S	104E
1470	Jul 13	07:13:09	227	20	-6549	130	N	t-	1.3062	0.4950	-0.5716	208.7	-	-	19S	106W
1470	Dec 08	13:05:57	226	20	-6544	97	N	-a	1.0370	0.9628	-0.0521	252.9	-	-	24N	164E
1471	Jun 03	00:23:09	226	20	-6538	102	P	-t	-0.6815	1.6054	0.6094	306.5	164.4	-	24S	5W
1471	Nov 27	20:42:20	225	20	-6532	107	T	-a	0.3745	2.2071	1.1353	353.3	212.1	56.8	23N	48E
1472	May 22	14:23:03	225	20	-6526	112	T+	pp	0.0974	2.6550	1.7032	320.8	212.5	98.0	22S	144E
1472	Nov 15	21:28:18	224	20	-6520	117	T	p-	-0.3155	2.3313	1.2280	371.4	222.9	73.2	21N	36E
1473	May 12	07:28:19	224	20	-6514	122	P	a-	0.8257	1.3152	0.3702	268.8	126.1	-	19S	112W

1473	Nov 04	21:08:21	223	20	-6508	127	P	t-	-0.9891	1.0848	0.0023	288.6	11.6	-	17N	40E
1474	Apr 02	12:41:23	223	20	-6503	94	N	-a	-1.0536	0.9327	-0.0830	255.3	-	-	9S	171E
1474	Sep 25	14:53:58	222	20	-6497	99	N	-a	1.1159	0.8052	-0.1842	231.2	-	-	5N	134E
1475	Mar 22	18:18:37	222	20	-6491	104	T	-t	-0.3413	2.2673	1.1969	360.9	218.7	68.2	4S	87E
1475	Sep 15	06:11:42	221	20	-6485	109	T	-p	0.3855	2.1283	1.1727	308.6	195.7	58.8	1N	94W
1476	Mar 10	18:25:11	221	20	-6479	114	T	t-	0.3818	2.2019	1.1139	365.6	217.2	53.9	1N	87E
1476	Sep 03	22:34:57	220	20	-6473	119	T	p-	-0.3243	2.2457	1.2797	316.8	202.7	73.1	4S	21E
1477	Feb 27	20:11:48	219	20	-6467	124	N	h-	1.0768	0.9104	-0.1454	262.8	-	-	6N	61E
1477	Aug 24	11:25:46	219	20	-6461	129	N	t-	-1.0987	0.8481	-0.1639	245.0	-	-	9S	170W
1478	Jan 18	17:33:31	218	20	-6456	96	P	-a	-1.0033	1.0091	0.0249	248.9	34.8	-	17N	101E
1478	Jul 15	02:32:37	218	20	-6450	101	P	-t	0.9258	1.1941	0.1250	302.8	85.8	-	19S	36W
1479	Jan 08	09:05:24	217	20	-6444	106	T	-p	-0.3253	2.2462	1.2758	312.7	199.6	71.6	20N	133W
1479	Jul 04	03:14:44	217	20	-6438	111	T+	pp	0.1634	2.5872	1.5297	367.0	230.7	98.9	22S	47W
1479	Dec 28	23:43:30	216	20	-6432	116	T	p-	0.3536	2.2103	1.2082	324.1	202.5	65.2	23N	7E
1480	Jun 22	08:55:25	216	20	-6426	121	P	h-	-0.6086	1.7454	0.7374	319.0	179.1	-	24S	132W
1480	Dec 17	09:00:47	215	20	-6420	126	N	h-	1.0904	0.8873	-0.1723	258.1	-	-	24N	134W
1481	May 13	14:33:55	215	20	-6415	93	N	-a	1.1953	0.6377	-0.3084	201.5	-	-	19S	142E
1481	Jun 11	21:44:01	215	20	-6414	131	N	a-	-1.3202	0.4144	-0.5436	168.9	-	-	25S	35E
1481	Nov 06	15:52:47	214	20	-6409	98	N	-t	-1.2265	0.6588	-0.4428	240.1	-	-	18N	119E
1482	May 03	07:38:59	214	20	-6403	103	T	-a	0.4772	1.9582	1.0059	305.1	188.5	11.5	18S	115W
1482	Oct 26	16:45:27	213	20	-6397	108	P	-t	-0.5111	1.9539	0.8872	343.7	196.7	-	15N	106E
1483	Apr 22	21:52:17	213	20	-6391	113	T-	p-	-0.2714	2.3590	1.3611	334.5	212.9	83.2	15S	32E
1483	Oct 16	00:35:58	212	20	-6385	118	T+	p-	0.2218	2.4545	1.4475	334.2	213.5	88.7	12N	12W
1484	Apr 11	05:22:45	212	20	-6379	123	N	t-	-1.0663	0.9292	-0.1257	268.0	-	-	13S	81W
1484	Oct 04	14:45:32	211	20	-6373	128	P	a-	0.9031	1.1830	0.2185	260.3	99.2	-	9N	136E
1485	Mar 01	13:29:43	211	20	-6368	95	N	-t	1.1247	0.8373	-0.2480	263.1	-	-	5N	162E
1485	Aug 25	22:01:57	210	20	-6362	100	P	-a	-1.0093	0.9934	0.0184	249.5	30.2	-	8S	31E
1486	Feb 18	16:51:49	210	20	-6356	105	T	-p	0.3760	2.1895	1.1471	343.2	209.0	58.2	9N	111E
1486	Aug 15	09:15:14	209	20	-6350	110	T	-p	-0.2900	2.3390	1.3131	345.8	216.5	80.5	11S	137W
1487	Feb 08	03:22:47	209	20	-6344	115	T	p-	-0.3470	2.2163	1.2262	321.4	202.3	67.3	12N	46W
1487	Aug 04	13:21:11	208	20	-6338	120	P	t-	0.4784	2.0145	0.9465	354.7	205.8	-	14S	161E
1488	Jan 28	18:35:27	208	20	-6332	125	P	a-	-1.0083	0.9911	0.0243	242.3	33.8	-	15N	85E
1488	Jul 23	13:46:39	207	20	-6326	130	N	t-	1.2247	0.6444	-0.4223	234.4	-	-	17S	155E
1488	Dec 18	21:43:55	207	20	-6321	97	N	-a	1.0435	0.9524	-0.0654	252.7	-	-	24N	36E
1489	Jun 13	07:28:43	206	20	-6315	102	P	-h	-0.7554	1.4679	0.4758	296.7	147.8	-	24S	111W
1489	Dec 08	04:57:03	206	20	-6309	107	T	-a	0.3817	2.1955	1.1203	354.2	211.8	53.9	24N	74W
1490	Jun 02	21:49:12	205	20	-6303	112	T+	pp	0.0243	2.7877	1.8386	320.6	213.1	99.8	23S	33E
1490	Nov 27	05:25:12	205	20	-6297	117	T	p-	-0.3043	2.3527	1.2475	372.3	223.8	75.7	22N	82W
1491	May 23	14:59:59	204	20	-6291	122	P	a-	0.7570	1.4411	0.4964	277.5	143.5	-	21S	135E
1491	Nov 16	05:10:37	204	20	-6285	127	P	t-	-0.9742	1.1121	0.0298	290.7	41.7	-	20N	80W

1492 Apr 12	20:07:42	203	20	-6280	94	N	-a	-1.1130	0.8240	-0.1923	243.5	-	-	13S	58E
1492 May 12	06:21:14	203	20	-6279	132	Nb	a-	1.5338	0.0347	-0.9474	52.0	-	-	19S	95W
1492 Oct 05	23:04:17	203	20	-6274	99	N	-a	1.1424	0.7566	-0.2331	224.6	-	-	10N	11E
1493 Apr 02	01:28:32	202	20	-6268	104	T	-t	-0.3964	2.1656	1.0963	358.4	214.0	49.5	9S	21W
1493 Sep 25	14:22:59	202	20	-6262	109	T	-p	0.4226	2.0613	1.1034	306.5	192.2	46.4	5N	142E
1494 Mar 22	01:37:15	201	20	-6256	114	T	t-	0.3335	2.2884	1.2046	367.5	221.7	70.1	4S	22W
1494 Sep 15	06:32:23	201	20	-6250	119	T	p-	-0.2805	2.3286	1.3576	319.7	205.8	80.5	0N	99W
1495 Mar 11	03:50:57	200	20	-6244	124	N	h-	1.0380	0.9784	-0.0711	269.4	-	-	1N	55W
1495 Sep 04	18:54:16	200	20	-6238	129	N	t-	-1.0490	0.9424	-0.0760	257.0	-	-	5S	76E
1496 Jan 30	02:12:20	199	20	-6233	96	P	-a	-1.0121	0.9911	0.0108	246.5	22.8	-	14N	29W
1496 Jul 25	09:03:57	199	20	-6227	101	Nx	-t	1.0074	1.0457	-0.0259	288.4	-	-	17S	134W
1497 Jan 18	17:53:13	198	20	-6221	106	T	-p	-0.3330	2.2316	1.2620	312.4	199.2	70.2	18N	96E
1497 Jul 14	09:49:53	198	20	-6215	111	T+	pp	0.2462	2.4347	1.3783	363.6	226.1	88.8	20S	145W
1498 Jan 08	08:25:30	197	20	-6209	116	T	p-	0.3505	2.2167	1.2130	325.2	203.2	65.9	21N	123W
1498 Jul 03	15:54:46	197	20	-6203	121	P	a-	-0.5280	1.8917	0.8867	324.5	190.8	-	23S	123E
1498 Dec 28	17:22:55	196	20	-6197	126	N	t-	1.0891	0.8910	-0.1711	259.4	-	-	24N	102E
1499 May 24	22:05:32	196	20	-6192	93	N	-a	1.2622	0.5137	-0.4300	182.8	-	-	21S	29E
1499 Jun 23	05:05:33	196	20	-6191	131	N	a-	-1.2446	0.5520	-0.4037	191.8	-	-	24S	75W
1499 Nov 17	23:45:52	195	20	-6186	98	N	-t	-1.2409	0.6332	-0.4699	235.9	-	-	20N	2E
1500 May 13	15:12:35	195	20	-6180	103	P	-a	0.5457	1.8326	0.8803	300.6	180.6	-	20S	132E
1500 Nov 06	00:48:32	194	20	-6174	108	P	-t	-0.5272	1.9240	0.8577	341.5	194.0	-	18N	15W

16TH CENTURY CE

In the 16th century CE the total number of lunar eclipses was 233 lunar eclipses: 82 penumbral lunar eclipses, 74 partial lunar eclipses, 77 total lunar eclipses (38 central total lunar eclipses, 39 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
ECLIPSE															

1501	May 03	05:13:24	194	20	-6168	113	T-	pp	-0.2065	2.4787	1.4796	337.9	217.0	91.9	18S	79W
1501	Oct 26	08:54:56	193	20	-6162	118	T+	p-	0.2000	2.4944	1.4878	333.9	213.9	90.8	16N	137W
1502	Apr 22	12:22:41	193	20	-6156	123	Nx	t-	-1.0034	1.0445	-0.0104	281.4	-	-	16S	174E
1502	Oct 15	23:10:38	192	20	-6150	128	P	a-	0.8760	1.2335	0.2675	264.2	108.8	-	13N	9E
1503	Mar 12	20:51:37	192	20	-6145	95	N	-t	1.1652	0.7604	-0.3198	252.0	-	-	1N	50E
1503	Sep 06	05:48:24	191	20	-6139	100	N	-a	-1.0620	0.8995	-0.0810	240.7	-	-	4S	87W
1504	Mar 01	00:44:45	191	20	-6133	105	T	-p	0.4057	2.1319	1.0957	339.8	205.8	47.6	4N	8W
1504	Aug 25	16:30:39	190	20	-6127	110	T	-a	-0.3517	2.2287	1.1967	344.6	212.3	66.6	8S	113E
1505	Feb 18	11:45:01	190	20	-6121	115	T	p-	-0.3241	2.2559	1.2707	321.3	203.7	72.4	8N	172W
1505	Aug 14	20:05:57	189	20	-6115	120	T	t-	0.4064	2.1487	1.0766	360.7	214.4	44.7	11S	60E
1506	Feb 08	03:14:05	189	20	-6109	125	P	a-	-0.9932	1.0177	0.0532	244.7	49.8	-	11N	44W
1506	Aug 03	20:24:27	188	20	-6103	130	N	t-	1.1457	0.7897	-0.2775	255.5	-	-	14S	55E
1506	Dec 30	06:22:24	188	20	-6098	97	N	-a	1.0490	0.9434	-0.0768	252.5	-	-	23N	93W
1507	Jun 24	14:33:58	187	20	-6092	102	P	-h	-0.8306	1.3283	0.3395	285.6	127.0	-	24S	143E
1507	Dec 19	13:12:59	187	20	-6086	107	T	-a	0.3872	2.1869	1.1090	355.0	211.7	51.6	24N	163E
1508	Jun 13	05:14:01	187	20	-6080	112	T-	pp	-0.0503	2.7390	1.7919	319.8	212.6	99.4	24S	78W
1508	Dec 07	13:26:11	186	20	-6074	117	T	p-	-0.2962	2.3680	1.2617	372.8	224.4	77.4	23N	158E
1509	Jun 02	22:29:16	186	20	-6068	122	P	a-	0.6867	1.5701	0.6253	285.5	158.0	-	22S	23E
1509	Nov 26	13:18:01	185	20	-6062	127	P	h-	-0.9626	1.1329	0.0514	292.0	54.5	-	22N	159E
1510	Apr 24	03:27:15	185	20	-6057	94	N	-h	-1.1769	0.7071	-0.3099	229.1	-	-	17S	52W
1510	May 23	13:38:06	185	20	-6056	132	N	h-	1.4702	0.1523	-0.8316	108.2	-	-	21S	156E
1510	Oct 17	07:21:58	184	20	-6051	99	N	-a	1.1638	0.7176	-0.2723	219.0	-	-	14N	114W
1511	Apr 13	08:29:05	184	20	-6045	104	P	-t	-0.4585	2.0511	0.9828	354.9	207.5	-	13S	127W
1511	Oct 06	22:42:05	183	20	-6039	109	T	-a	0.4533	2.0062	1.0458	304.8	189.1	31.4	9N	17E
1512	Apr 01	08:40:56	183	20	-6033	114	T	pp	0.2779	2.3882	1.3087	369.2	225.9	82.9	8S	129W
1512	Sep 25	14:37:18	182	20	-6027	119	T-	p-	-0.2435	2.3992	1.4231	322.2	208.1	85.6	4N	139E
1513	Mar 21	11:22:50	182	20	-6021	124	P	h-	0.9923	1.0591	0.0158	276.6	29.8	-	3S	169W
1513	Sep 15	02:30:21	181	20	-6015	129	Nx	t-	-1.0061	1.0244	-0.0003	266.9	-	-	0S	39W
1514	Feb 09	10:45:13	181	20	-6010	96	N	-a	-1.0259	0.9637	-0.0126	243.1	-	-	10N	157W
1514	Aug 05	15:39:53	181	20	-6004	101	N	-t	1.0845	0.9056	-0.1689	272.7	-	-	13S	127E
1515	Jan 30	02:35:55	180	20	-5998	106	T	-p	-0.3447	2.2095	1.2411	312.0	198.6	67.8	15N	35W
1515	Jul 25	16:29:55	180	20	-5992	111	T	pp	0.3252	2.2894	1.2336	359.3	220.1	73.5	17S	115E
1516	Jan 19	17:02:12	179	20	-5986	116	T	p-	0.3438	2.2296	1.2247	326.5	204.2	67.6	19N	109E
1516	Jul 13	22:58:22	179	20	-5980	121	T	a-	-0.4501	2.0334	1.0308	328.8	199.7	27.3	21S	18E
1517	Jan 08	01:41:56	178	20	-5974	126	N	t-	1.0863	0.8971	-0.1668	260.9	-	-	22N	22W
1517	Jun 04	05:34:11	178	20	-5969	93	N	-a	1.3316	0.3854	-0.5566	160.1	-	-	22S	83W
1517	Jul 03	12:28:22	178	20	-5968	131	N	a-	-1.1694	0.6892	-0.2649	210.9	-	-	23S	175E
1517	Nov 28	07:44:08	177	20	-5963	98	N	-t	-1.2510	0.6151	-0.4888	232.9	-	-	22N	117W
1518	May 24	22:40:53	177	20	-5957	103	P	-a	0.6180	1.7003	0.7474	295.1	170.6	-	22S	20E

1518	Nov 17	08:59:10	176	20	-5951	108	P	-t	-0.5379	1.9040	0.8386	339.6	191.9	-	21N	137W
1519	May 14	12:25:25	176	20	-5945	113	T-	pp	-0.1349	2.6107	1.6101	341.0	220.4	98.3	21S	173E
1519	Nov 06	17:22:25	176	20	-5939	118	T+	p-	0.1846	2.5223	1.5162	333.3	214.0	92.1	19N	96E
1520	May 02	19:14:14	175	20	-5933	123	P	t-	-0.9344	1.1712	0.1162	294.7	81.5	-	19S	71E
1520	Oct 26	07:43:00	175	20	-5927	128	P	a-	0.8550	1.2729	0.3053	267.0	115.5	-	16N	119W
1521	Mar 23	04:07:01	174	20	-5922	95	N	-t	1.2110	0.6739	-0.4013	238.6	-	-	4S	60W
1521	Sep 16	13:41:13	174	20	-5916	100	N	-a	-1.1087	0.8167	-0.1694	232.2	-	-	0N	154E
1521	Oct 15	23:41:23	174	20	-5915	138	N	a-	1.5291	0.0387	-0.9343	53.2	-	-	14N	1E
1522	Mar 12	08:32:35	173	20	-5910	105	T	-t	0.4404	2.0649	1.0351	335.8	201.8	29.3	0N	125W
1522	Sep 05	23:50:38	173	20	-5904	110	T	-a	-0.4089	2.1270	1.0888	343.2	207.4	46.4	3S	2E
1523	Mar 01	20:01:59	172	20	-5898	115	T	p-	-0.2962	2.3044	1.3244	321.3	205.3	77.7	4N	63E
1523	Aug 26	02:57:00	172	20	-5892	120	T	t-	0.3396	2.2734	1.1970	365.5	221.0	68.9	7S	44W
1524	Feb 19	11:45:13	172	20	-5886	125	P	a-	-0.9720	1.0555	0.0934	248.1	65.7	-	7N	173W
1524	Aug 14	03:11:09	171	20	-5880	130	N	t-	1.0729	0.9238	-0.1443	272.2	-	-	10S	47W
1525	Jan 09	14:56:49	171	20	-5875	97	N	-a	1.0577	0.9284	-0.0937	251.7	-	-	21N	140E
1525	Jul 04	21:43:22	170	20	-5869	102	P	-h	-0.9030	1.1941	0.2081	273.9	101.0	-	23S	36E
1525	Dec 29	21:26:18	170	20	-5863	107	T	-a	0.3944	2.1747	1.0947	355.7	211.4	48.4	23N	41E
1526	Jun 24	12:39:42	169	20	-5857	112	T-	pp	-0.1248	2.6017	1.6560	318.3	211.0	96.4	23S	172E
1526	Dec 18	21:27:47	169	20	-5851	117	T	p-	-0.2888	2.3819	1.2753	373.2	224.9	79.0	23N	39E
1527	Jun 14	05:54:50	169	20	-5845	122	P	a-	0.6135	1.7050	0.7592	293.1	170.6	-	23S	88W
1527	Dec 07	21:30:03	168	20	-5839	127	P	h-	-0.9541	1.1477	0.0678	292.7	62.3	-	23N	37E
1528	May 04	10:37:12	168	20	-5834	94	N	-h	-1.2477	0.5778	-0.4405	210.5	-	-	20S	160W
1528	Jun 02	20:49:33	168	20	-5833	132	N	h-	1.4027	0.2774	-0.7089	144.9	-	-	22S	48E
1528	Oct 27	15:48:34	167	20	-5828	99	N	-a	1.1787	0.6902	-0.2997	214.9	-	-	17N	119E
1529	Apr 23	15:20:26	167	20	-5822	104	P	-t	-0.5277	1.9238	0.8564	350.0	198.6	-	16S	130E
1529	Oct 17	07:09:31	166	20	-5816	109	T	-a	0.4775	1.9631	1.0002	303.4	186.4	2.2	13N	111W
1530	Apr 12	15:36:21	166	20	-5810	114	T+	pp	0.2151	2.5012	1.4259	370.6	229.6	92.9	12S	126E
1530	Oct 06	22:49:12	166	20	-5804	119	T-	p-	-0.2127	2.4583	1.4771	324.4	209.9	89.0	9N	15E
1531	Apr 01	18:47:56	165	20	-5798	124	P	h-	0.9400	1.1518	0.1148	284.3	79.0	-	7S	79E
1531	Sep 26	10:13:21	165	20	-5792	129	P	t-	-0.9697	1.0946	0.0633	275.1	58.4	-	4N	155W
1532	Feb 20	19:11:55	164	20	-5787	96	N	-a	-1.0452	0.9260	-0.0460	238.6	-	-	6N	76E
1532	Aug 15	22:22:06	164	20	-5781	101	N	-t	1.1560	0.7762	-0.3015	256.1	-	-	10S	25E
1533	Feb 09	11:13:51	163	20	-5775	106	T	-p	-0.3602	2.1804	1.2135	311.4	197.6	64.5	11N	164W
1533	Aug 04	23:15:58	163	20	-5769	111	T	-t	0.3999	2.1521	1.0967	354.3	212.8	49.4	14S	13E
1534	Jan 30	01:34:31	163	20	-5763	116	T	p-	0.3341	2.2477	1.2420	327.9	205.5	70.0	15N	19W
1534	Jul 25	06:07:00	162	20	-5757	121	T	a-	-0.3755	2.1694	1.1687	332.0	206.5	61.1	18S	90W
1535	Jan 19	09:56:16	162	20	-5751	126	N	t-	1.0801	0.9091	-0.1561	263.1	-	-	19N	145W
1535	Jun 15	13:01:27	161	20	-5746	93	N	-a	1.4024	0.2551	-0.6860	131.8	-	-	22S	166E
1535	Jul 14	19:54:00	161	20	-5745	131	N	a-	-1.0957	0.8238	-0.1292	227.0	-	-	21S	64E
1535	Dec 09	15:45:19	161	20	-5740	98	N	-t	-1.2588	0.6007	-0.5033	230.3	-	-	22N	124E

1536	Jun 04	06:06:31	161	20	-5734	103	P	-a	0.6920	1.5651	0.6110	288.6	158.0	-	23S	91W
1536	Nov 27	17:14:00	160	20	-5728	108	P	-t	-0.5457	1.8890	0.8250	337.9	190.3	-	22N	100E
1537	May 24	19:33:11	160	20	-5722	113	T-	pp	-0.0608	2.7477	1.7450	343.4	222.7	102.1	22S	67E
1537	Nov 17	01:55:49	159	20	-5716	118	T+	p-	0.1739	2.5415	1.5364	332.6	213.8	92.9	21N	31W
1538	May 14	01:57:58	159	20	-5710	123	P	t-	-0.8595	1.3090	0.2535	307.6	118.3	-	21S	30W
1538	Nov 06	16:22:00	159	20	-5704	128	P	a-	0.8393	1.3023	0.3334	269.0	120.1	-	20N	111E
1539	Apr 03	11:13:11	158	20	-5699	95	N	-t	1.2644	0.5733	-0.4966	221.5	-	-	8S	167W
1539	Sep 27	21:41:55	158	20	-5693	100	N	-a	-1.1485	0.7465	-0.2453	224.5	-	-	4N	33E
1539	Oct 27	08:10:56	158	20	-5692	138	N	a-	1.5127	0.0710	-0.9062	72.0	-	-	17N	127W
1540	Mar 22	16:11:06	157	20	-5687	105	P	-t	0.4838	1.9821	0.9587	331.1	196.4	-	4S	119E
1540	Sep 16	07:18:54	157	20	-5681	110	P	-a	-0.4584	2.0394	0.9948	341.7	202.4	-	1N	111W
1541	Mar 12	04:11:18	157	20	-5675	115	T-	p-	-0.2612	2.3660	1.3911	321.4	207.2	83.3	1S	60W
1541	Sep 05	09:54:44	156	20	-5669	120	T	pp	0.2784	2.3878	1.3071	369.4	225.8	82.7	3S	149W
1542	Mar 01	20:09:58	156	20	-5663	125	P	a-	-0.9456	1.1026	0.1430	252.2	80.7	-	3N	60E
1542	Aug 25	10:04:50	155	20	-5657	130	Nx	t-	1.0046	1.0495	-0.0196	285.9	-	-	7S	151W
1543	Jan 20	23:27:43	155	20	-5652	97	N	-a	1.0685	0.9093	-0.1142	250.4	-	-	19N	13E
1543	Jul 16	04:55:01	155	20	-5646	102	P	-h	-0.9742	1.0624	0.0785	261.1	63.0	-	21S	71W
1544	Jan 10	05:37:49	154	20	-5640	107	T	-h	0.4024	2.1606	1.0793	356.1	211.0	44.6	21N	81W
1544	Jul 04	20:06:55	154	20	-5634	112	T-	-p	-0.1982	2.4666	1.5216	316.2	208.4	90.9	22S	60E
1544	Dec 29	05:29:08	153	20	-5628	117	T	p-	-0.2809	2.3960	1.2900	373.5	225.5	80.7	22N	80W
1545	Jun 24	13:21:00	153	20	-5622	122	P	a-	0.5409	1.8389	0.8915	299.7	181.0	-	22S	161E
1545	Dec 18	05:44:59	153	20	-5616	127	P	h-	-0.9471	1.1595	0.0818	293.0	68.2	-	22N	85W
1546	May 15	17:40:50	152	20	-5611	94	N	-h	-1.3224	0.4417	-0.5782	187.2	-	-	22S	94E
1546	Jun 14	03:57:37	152	20	-5610	132	N	h-	1.3330	0.4067	-0.5825	174.0	-	-	22S	59W
1546	Nov 08	00:21:31	152	20	-5605	99	N	-a	1.1891	0.6710	-0.3188	211.8	-	-	20N	9W
1547	May 04	22:04:30	152	20	-5599	104	P	-t	-0.6022	1.7867	0.7199	343.8	186.8	-	19S	28E
1547	Oct 28	15:43:38	151	20	-5593	109	P	-a	0.4960	1.9304	0.9652	302.3	184.2	-	17N	121E
1548	Apr 22	22:24:49	151	20	-5587	114	T+	pp	0.1463	2.6254	1.5543	371.5	232.4	100.3	15S	24E
1548	Oct 17	07:08:28	150	20	-5581	119	T-	p-	-0.1886	2.5050	1.5188	326.2	211.2	91.4	13N	110W
1549	Apr 12	02:06:53	150	20	-5575	124	P	h-	0.8818	1.2555	0.2247	292.1	108.5	-	11S	31W
1549	Oct 06	18:02:24	150	20	-5569	129	P	t-	-0.9388	1.1543	0.1168	282.0	78.9	-	8N	87E
1550	Mar 03	03:31:33	149	20	-5564	96	N	-a	-1.0707	0.8771	-0.0906	232.8	-	-	2N	50W
1550	Apr 01	12:54:38	149	20	-5563	134	Nb	a-	1.5507	0.0022	-0.9770	13.1	-	-	7S	168E
1550	Aug 27	05:11:26	149	20	-5558	101	N	-t	1.2211	0.6583	-0.4225	238.8	-	-	6S	78W
1551	Feb 20	19:43:10	148	20	-5552	106	T	-p	-0.3827	2.1382	1.1729	310.4	196.1	58.9	7N	68E
1551	Aug 16	06:09:50	148	20	-5546	111	P	-t	0.4689	2.0256	0.9703	348.8	204.6	-	10S	92W
1552	Feb 10	09:58:44	148	20	-5540	116	T	p-	0.3184	2.2769	1.2707	329.6	207.2	73.5	12N	145W
1552	Aug 04	13:22:36	147	20	-5534	121	T	a-	-0.3055	2.2970	1.2977	334.2	211.3	77.5	15S	161E
1553	Jan 29	18:03:49	147	20	-5528	126	N	t-	1.0691	0.9295	-0.1363	266.3	-	-	16N	94E
1553	Jun 25	20:29:07	147	20	-5523	93	N	-a	1.4727	0.1259	-0.8148	93.6	-	-	21S	54E

1553	Jul 25	03:24:10	147	20	-5522	131	P	a-	-1.0254	0.9527	0.0001	240.3	2.2	-	18S	49W
1553	Dec 19	23:49:18	146	20	-5517	98	N	-t	-1.2644	0.5901	-0.5131	228.2	-	-	22N	4E
1554	Jun 15	13:27:57	146	20	-5511	103	P	-a	0.7688	1.4251	0.4692	280.8	141.8	-	23S	159E
1554	Dec 09	01:34:25	146	20	-5505	108	P	-t	-0.5496	1.8808	0.8189	336.4	189.3	-	23N	24W
1555	Jun 05	02:34:52	145	20	-5499	113	T+	pp	0.0172	2.8291	1.8238	345.1	223.8	103.1	23S	38W
1555	Nov 28	10:34:49	145	20	-5493	118	T+	p-	0.1671	2.5533	1.5495	331.8	213.6	93.3	23N	160W
1556	May 24	08:36:03	144	20	-5487	123	P	t-	-0.7803	1.4546	0.3983	319.7	145.4	-	23S	129W
1556	Nov 17	01:06:52	144	20	-5481	128	P	a-	0.8287	1.3223	0.3523	270.3	123.0	-	22N	19W
1557	Apr 13	18:14:10	144	20	-5476	95	N	-t	1.3222	0.4646	-0.6002	200.8	-	-	11S	87E
1557	May 13	09:23:01	144	20	-5475	133	Nb	t-	-1.5371	0.0735	-0.9975	83.9	-	-	22S	142W
1557	Oct 08	05:47:56	143	20	-5470	100	N	-a	-1.1834	0.6855	-0.3121	217.3	-	-	8N	89W
1557	Nov 06	16:44:58	143	20	-5469	138	N	a-	1.5004	0.0955	-0.8857	83.5	-	-	20N	105E
1558	Apr 02	23:45:09	143	20	-5464	105	P	-t	0.5316	1.8911	0.8741	325.7	189.9	-	8S	5E
1558	Sep 27	14:53:06	143	20	-5458	110	P	-a	-0.5022	1.9622	0.9113	340.2	197.2	-	5N	135E
1559	Mar 23	12:13:17	142	20	-5452	115	T-	p-	-0.2197	2.4396	1.4697	321.6	209.0	88.5	5S	178E
1559	Sep 16	17:00:59	142	20	-5446	120	T+	pp	0.2244	2.4890	1.4040	372.3	229.3	91.3	1N	103E
1560	Mar 12	04:26:25	142	20	-5440	125	P	a-	-0.9127	1.1617	0.2045	257.2	95.8	-	1S	65W
1560	Sep 04	17:08:48	141	20	-5434	130	P	t-	0.9441	1.1611	0.0910	296.6	72.8	-	3S	102E
1561	Jan 31	07:51:02	141	20	-5429	97	N	-a	1.0850	0.8796	-0.1449	247.9	-	-	15N	113W
1561	Jul 26	12:13:48	141	20	-5423	102	N	-a	-1.0403	0.9403	-0.0419	247.9	-	-	18S	179E
1562	Jan 20	13:43:39	140	20	-5417	107	T	-t	0.4147	2.1385	1.0565	356.2	210.1	38.0	18N	158E
1562	Jul 16	03:36:18	140	20	-5411	112	T-	-p	-0.2701	2.3346	1.3897	313.5	204.7	82.5	20S	52W
1563	Jan 09	13:28:26	140	20	-5405	117	T-	p-	-0.2713	2.4130	1.3084	373.6	226.2	82.6	20N	161E
1563	Jul 05	20:46:25	139	20	-5399	122	T	a-	0.4679	1.9740	1.0244	305.7	189.8	23.4	21S	50E
1563	Dec 29	13:59:50	139	20	-5393	127	P	h-	-0.9393	1.1722	0.0975	293.2	74.1	-	22N	152E
1564	May 26	00:37:04	139	20	-5388	94	N	-h	-1.4019	0.2969	-0.7251	156.1	-	-	24S	9W
1564	Jun 24	11:03:06	139	20	-5387	132	N	h-	1.2617	0.5393	-0.4534	198.7	-	-	22S	165W
1564	Nov 18	09:01:31	138	20	-5382	99	N	-a	1.1947	0.6605	-0.3288	209.9	-	-	23N	138W
1564	Dec 17	21:16:35	138	20	-5381	137	N	a-	-1.5589	0.0066	-1.0110	23.0	-	-	22N	42E
1565	May 15	04:41:15	138	20	-5376	104	P	-t	-0.6820	1.6401	0.5737	335.8	171.1	-	22S	71W
1565	Nov 08	00:23:47	138	20	-5370	109	P	-a	0.5096	1.9065	0.9391	301.6	182.5	-	20N	9W
1566	May 04	05:06:55	137	20	-5364	114	T+	pp	0.0717	2.7602	1.6931	371.7	234.2	104.7	18S	77W
1566	Oct 28	15:34:04	137	20	-5358	119	T-	p-	-0.1704	2.5408	1.5497	327.9	212.3	92.9	16N	123E
1567	Apr 23	09:18:47	137	20	-5352	124	P	h-	0.8169	1.3716	0.3469	299.9	131.9	-	15S	140W
1567	Oct 18	01:59:01	136	20	-5346	129	P	t-	-0.9150	1.2012	0.1576	287.5	91.4	-	12N	33W
1568	Mar 13	11:44:26	136	20	-5341	96	N	-a	-1.1022	0.8172	-0.1461	225.6	-	-	2S	174W
1568	Apr 11	20:39:01	136	20	-5340	134	N	a-	1.4971	0.0979	-0.8760	85.4	-	-	11S	51E
1568	Sep 06	12:08:32	136	20	-5335	101	N	-t	1.2796	0.5525	-0.5316	221.3	-	-	1S	177E
1569	Mar 03	04:06:07	135	20	-5329	106	T	-a	-0.4104	2.0866	1.1229	309.0	193.9	50.5	3N	59W
1569	Aug 26	13:12:19	135	20	-5323	111	P	-t	0.5313	1.9111	0.8557	343.0	195.7	-	6S	162E

1570 Feb 20	18:16:29	135	20	-5317	116	T	p-	0.2981	2.3142	1.3078	331.5	209.2	77.5	7N	90E
1570 Aug 15	20:44:32	134	20	-5311	121	T-	p-	-0.2401	2.4165	1.4182	335.5	214.6	87.6	11S	50E
1571 Feb 10	02:04:37	134	20	-5305	126	N	t-	1.0536	0.9581	-0.1079	270.3	-	-	12N	27W
1571 Aug 05	10:59:41	134	20	-5299	131	P	a-	-0.9592	1.0742	0.1214	251.4	75.3	-	15S	163W
1571 Dec 31	07:51:30	134	20	-5294	98	N	-t	-1.2712	0.5768	-0.5248	225.6	-	-	21N	115W
1572 Jun 25	20:49:38	133	20	-5288	103	P	-a	0.8446	1.2873	0.3289	272.0	121.5	-	22S	49E
1572 Dec 19	09:56:06	133	20	-5282	108	P	-h	-0.5525	1.8741	0.8149	334.9	188.5	-	23N	148W
1573 Jun 15	09:33:59	133	20	-5276	113	T+	pp	0.0963	2.6854	1.6770	346.0	223.5	101.2	23S	143W
1573 Dec 08	19:16:15	132	20	-5270	118	T+	p-	0.1620	2.5617	1.5597	330.9	213.3	93.5	24N	71E
1574 Jun 04	15:09:12	132	20	-5264	123	P	t-	-0.6978	1.6067	0.5492	330.9	167.1	-	24S	133E
1574 Nov 28	09:55:42	132	20	-5258	128	P	a-	0.8213	1.3362	0.3655	271.2	125.0	-	24N	150W
1575 Apr 25	01:06:07	131	20	-5253	95	N	-t	1.3873	0.3426	-0.7172	173.8	-	-	15S	16W
1575 May 24	15:51:34	131	20	-5252	133	N	t-	-1.4543	0.2241	-0.8445	144.4	-	-	24S	122E
1575 Oct 19	14:02:17	131	20	-5247	100	N	-a	-1.2107	0.6381	-0.3650	211.5	-	-	12N	147E
1575 Nov 18	01:25:10	131	20	-5246	138	N	a-	1.4937	0.1097	-0.8751	89.6	-	-	23N	24W
1576 Apr 13	07:11:15	131	20	-5241	105	P	-t	0.5866	1.7872	0.7764	319.3	181.4	-	12S	108W
1576 Oct 07	22:35:10	130	20	-5235	110	P	-a	-0.5385	1.8988	0.8417	339.0	192.4	-	9N	18E
1577 Apr 02	20:08:12	130	20	-5229	115	T-	p-	-0.1720	2.5248	1.5598	321.8	210.7	93.1	9S	59E
1577 Sep 27	00:16:05	130	20	-5223	120	T+	pp	0.1782	2.5760	1.4868	374.5	231.6	96.7	5N	7W
1578 Mar 23	12:35:21	130	20	-5217	125	P	a-	-0.8739	1.2318	0.2770	262.8	110.4	-	6S	172E
1578 Sep 16	00:21:26	129	20	-5211	130	P	t-	0.8898	1.2613	0.1901	305.3	103.5	-	2N	7W
1579 Feb 11	16:08:35	129	20	-5206	97	N	-a	1.1054	0.8425	-0.1826	244.3	-	-	12N	122E
1579 Aug 06	19:37:40	129	20	-5200	102	N	-a	-1.1029	0.8249	-0.1563	234.2	-	-	15S	68E
1580 Jan 31	21:43:38	128	20	-5194	107	T	-t	0.4311	2.1084	1.0264	355.9	208.8	26.3	15N	39E
1580 Jul 26	11:09:57	128	20	-5188	112	T	-p	-0.3387	2.2090	1.2636	310.4	200.0	70.8	17S	166W
1581 Jan 19	21:24:55	128	20	-5182	117	T-	p-	-0.2590	2.4346	1.3319	373.8	227.0	84.9	18N	43E
1581 Jul 16	04:13:14	128	20	-5176	122	T	p-	0.3965	2.1064	1.1540	310.8	196.9	56.5	19S	62W
1582 Jan 08	22:14:13	127	20	-5170	127	P	a-	-0.9305	1.1866	0.1155	293.6	80.2	-	20N	30E
1582 Jun 06	07:29:31	127	20	-5165	94	N	-t	-1.4831	0.1492	-0.8753	112.6	-	-	25S	112W
1582 Jul 05	18:07:58	127	20	-5164	132	N	t-	1.1904	0.6722	-0.3246	219.9	-	-	20S	89E
1582 Dec 09	17:45:07	127	20	-5159	99	N	-a	1.1978	0.6544	-0.3340	208.5	-	-	24N	93E
1583 Jan 08	05:55:01	127	20	-5158	137	N	a-	-1.5514	0.0186	-0.9958	38.5	-	-	21N	87W
1583 Jun 05	11:12:21	127	20	-5153	104	P	-t	-0.7656	1.4867	0.4204	326.0	150.3	-	23S	168W
1583 Nov 29	09:08:52	126	20	-5147	109	P	-a	0.5191	1.8901	0.9208	301.1	181.3	-	22N	140W
1584 May 24	11:45:09	126	20	-5141	114	T-	pp	-0.0065	2.8780	1.8146	371.0	234.5	106.1	21S	177W
1584 Nov 18	00:04:26	126	20	-5135	119	T-	p-	-0.1567	2.5682	1.5726	329.5	213.1	94.0	19N	4W
1585 May 13	16:27:06	125	20	-5129	124	P	h-	0.7478	1.4955	0.4764	307.2	151.1	-	18S	113E
1585 Nov 07	10:01:46	125	20	-5123	129	P	t-	-0.8966	1.2379	0.1885	291.9	99.8	-	16N	154W
1586 Apr 03	19:49:06	125	20	-5118	96	N	-a	-1.1406	0.7446	-0.2145	216.5	-	-	7S	64E
1586 May 03	04:16:35	125	20	-5117	134	N	a-	1.4374	0.2050	-0.7639	122.0	-	-	14S	64W

1586	Sep 27	19:14:31	125	20	-5112	101	N	-t	1.3307	0.4605	-0.6269	203.9	-	-	3N	69E
1587	Mar 24	12:19:46	124	20	-5106	106	T	-a	-0.4456	2.0212	1.0591	307.2	190.9	35.8	2S	177E
1587	Sep 16	20:25:04	124	20	-5100	111	P	-t	0.5857	1.8114	0.7555	337.4	186.6	-	2S	53E
1588	Mar 13	02:23:34	124	20	-5094	116	T+	p-	0.2699	2.3661	1.3596	333.6	211.6	82.5	3N	33W
1588	Sep 05	04:15:58	124	20	-5088	121	T-	p-	-0.1819	2.5231	1.5254	336.1	216.6	93.8	7S	64W
1589	Mar 02	09:56:49	123	20	-5082	126	N	t-	1.0320	0.9977	-0.0682	275.3	-	-	8N	145W
1589	Aug 25	18:40:23	123	20	-5076	131	P	a-	-0.8970	1.1887	0.2352	260.8	102.9	-	12S	81E
1590	Jan 20	15:53:19	123	20	-5071	98	N	-t	-1.2784	0.5625	-0.5369	222.7	-	-	19N	125E
1590	Jul 17	04:09:54	123	20	-5065	103	P	-a	0.9206	1.1494	0.1879	261.8	94.0	-	20S	61W
1591	Jan 09	18:19:20	122	20	-5059	108	P	-h	-0.5552	1.8675	0.8116	333.4	187.7	-	22N	88E
1591	Jul 06	16:29:28	122	20	-5053	113	T+	pp	0.1776	2.5382	1.5261	346.0	221.6	95.7	23S	114E
1591	Dec 30	04:00:34	122	20	-5047	118	T+	p-	0.1588	2.5665	1.5667	329.9	212.9	93.7	23N	59W
1592	Jun 24	21:40:10	122	20	-5041	123	P	t-	-0.6136	1.7620	0.7028	340.8	184.6	-	24S	36E
1592	Dec 18	18:46:57	121	20	-5035	128	P	a-	0.8161	1.3460	0.3749	271.8	126.4	-	24N	78E
1593	May 15	07:55:14	121	20	-5030	95	N	-t	1.4548	0.2164	-0.8387	139.3	-	-	18S	119W
1593	Jun 13	22:19:49	121	20	-5029	133	N	t-	-1.3705	0.3769	-0.6895	184.3	-	-	25S	25E
1593	Nov 08	22:22:02	121	20	-5024	100	N	-a	-1.2329	0.6001	-0.4084	206.7	-	-	16N	22E
1593	Dec 08	10:08:27	121	20	-5023	138	N	a-	1.4900	0.1180	-0.8701	93.1	-	-	24N	154W
1594	May 04	14:32:41	121	20	-5018	105	P	-t	0.6462	1.6748	0.6700	312.0	171.1	-	15S	142E
1594	Oct 29	06:23:43	121	20	-5012	110	P	-a	-0.5687	1.8463	0.7834	338.0	188.0	-	13N	99W
1595	Apr 24	03:56:43	120	20	-5006	115	T-	p-	-0.1185	2.6206	1.6602	321.8	212.1	96.7	13S	59W
1595	Oct 18	07:40:05	120	20	-5000	120	T+	pp	0.1391	2.6497	1.5567	376.1	233.1	100.2	10N	118W
1596	Apr 12	20:35:29	120	20	-4994	125	P	a-	-0.8279	1.3151	0.3623	269.0	124.8	-	10S	51E
1596	Oct 06	07:45:08	120	20	-4988	130	P	t-	0.8436	1.3465	0.2742	311.9	122.6	-	6N	119W
1597	Mar 04	00:16:53	120	20	-4983	97	N	-a	1.1329	0.7922	-0.2333	238.8	-	-	7N	0W
1597	Aug 27	03:08:44	119	20	-4977	102	N	-a	-1.1604	0.7190	-0.2615	220.4	-	-	11S	46W
1597	Sep 25	13:40:49	119	20	-4976	140	N	a-	1.5117	0.0924	-0.9236	86.8	-	-	2N	152E
1598	Feb 21	05:35:26	119	20	-4971	107	P	-t	0.4537	2.0666	0.9851	355.0	206.6	-	11N	80W
1598	Aug 16	18:47:57	119	20	-4965	112	T	-a	-0.4040	2.0898	1.1433	306.9	194.6	54.2	14S	80E
1599	Feb 10	05:14:34	119	20	-4959	117	T-	p-	-0.2410	2.4660	1.3662	373.9	228.1	88.0	14N	74W
1599	Aug 06	11:42:05	118	20	-4953	122	T	p-	0.3273	2.2352	1.2793	315.2	202.6	73.1	17S	174W
1600	Jan 30	06:25:27	118	20	-4947	127	P	a-	-0.9183	1.2067	0.1399	294.3	87.8	-	17N	93W
1600	Jul 26	01:13:16	117	20	-4941	132	N	t-	1.1201	0.8035	-0.1979	238.3	-	-	18S	17W
1600	Dec 20	02:31:53	117	20	-4936	99	N	-a	1.1990	0.6515	-0.3355	207.7	-	-	25N	38W

17TH CENTURY CE

**In the 17th century CE the total number of lunar eclipses was 249 lunar eclipses:
91 penumbral lunar eclipses, 97 partial lunar eclipses, 61 total lunar eclipses
(50 central total lunar eclipses, 11 non-central total lunar eclipses).**

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
ECLIPSE															
1601 Jan 18	14:32:21	117	20	-4935	137	N	a-	-1.5426	0.0330	-0.9777	51.0	-	-	19N	145E
1601 Jun 15	17:39:33	117	20	-4930	104	P	-t	-0.8517	1.3288	0.2622	314.2	121.7	-	24S	96E
1601 Dec 09	17:58:32	116	20	-4924	109	P	-a	0.5249	1.8800	0.9093	300.9	180.6	-	23N	89E
1602 Jun 04	18:18:11	116	20	-4918	114	T-	pp	-0.0895	2.7240	1.6640	369.3	233.2	104.0	23S	85E
1602 Nov 29	08:40:25	115	20	-4912	119	T-	p-	-0.1482	2.5859	1.5861	330.9	213.7	94.6	21N	132W
1603 May 24	23:30:54	115	19	-4906	124	P	a-	0.6737	1.6287	0.6150	314.0	167.4	-	20S	7E
1603 Nov 18	18:10:29	114	19	-4900	129	P	t-	-0.8838	1.2640	0.2093	295.4	105.2	-	18N	84E
1604 Apr 14	03:47:04	114	19	-4895	96	N	-a	-1.1848	0.6614	-0.2937	205.3	-	-	11S	57W
1604 May 13	11:49:46	113	19	-4894	134	N	a-	1.3733	0.3201	-0.6441	150.3	-	-	17S	178W
1604 Oct 08	02:29:41	113	19	-4889	101	N	-t	1.3742	0.3822	-0.7083	187.2	-	-	7N	40W
1605 Apr 03	20:27:01	113	19	-4883	106	P	-a	-0.4858	1.9467	0.9861	304.9	187.0	-	6S	54E
1605 Sep 27	03:46:01	112	19	-4877	111	P	-t	0.6341	1.7229	0.6667	331.9	177.5	-	2N	58W
1606 Mar 24	10:23:17	111	19	-4871	116	T+	p-	0.2363	2.4276	1.4211	335.9	214.1	87.5	1S	154W
1606 Sep 16	11:55:20	111	19	-4865	121	T-	p-	-0.1296	2.6188	1.6215	336.1	217.7	97.5	3S	180W
1607 Mar 13	17:38:52	110	19	-4859	126	Nx	t-	1.0028	1.0510	-0.0145	281.7	-	-	4N	98E
1607 Sep 06	02:28:41	110	19	-4853	131	P	a-	-0.8408	1.2923	0.3377	268.4	121.3	-	8S	37W
1608 Jan 31	23:50:20	109	19	-4848	98	N	-t	-1.2895	0.5406	-0.5557	218.4	-	-	16N	6E
1608 Jul 27	11:33:01	109	19	-4842	103	P	-a	0.9936	1.0172	0.0521	250.8	50.5	-	18S	172W
1608 Aug 25	19:20:07	109	19	-4841	141	Nb	a-	-1.5414	0.0062	-0.9470	21.2	-	-	12S	71E
1609 Jan 20	02:39:40	108	19	-4836	108	P	-h	-0.5607	1.8553	0.8034	331.5	186.5	-	20N	37W
1609 Jul 16	23:25:48	107	19	-4830	113	T+	-p	0.2570	2.3946	1.3783	345.1	218.3	86.3	21S	10E
1610 Jan 09	12:44:35	107	18	-4824	118	T+	p-	0.1550	2.5721	1.5751	329.0	212.7	93.9	22N	171E
1610 Jul 06	04:08:02	106	18	-4818	123	P	t-	-0.5274	1.9212	0.8600	349.5	199.1	-	23S	61W
1610 Dec 30	03:39:53	106	18	-4812	128	P	a-	0.8125	1.3526	0.3816	272.2	127.4	-	24N	54W
1611 May 26	14:38:03	105	18	-4807	95	Ne	-t	1.5270	0.0817	-0.9689	86.3	-	-	20S	140E
1611 Jun 25	04:45:07	105	18	-4806	133	N	t-	-1.2837	0.5352	-0.5295	216.1	-	-	25S	71W
1611 Nov 20	06:48:14	105	18	-4801	100	N	-a	-1.2493	0.5725	-0.4410	203.2	-	-	19N	105W
1611 Dec 19	18:54:20	104	18	-4800	138	N	a-	1.4893	0.1208	-0.8700	94.4	-	-	25N	76E

1612 May 14	21:48:16	104	18	-4795	105	P	-t	0.7111	1.5528	0.5535	303.5	157.9	-	18S	33E
1612 Nov 08	14:19:55	103	18	-4789	110	P	-h	-0.5915	1.8071	0.7388	337.4	184.5	-	16N	142E
1613 May 04	11:39:02	103	18	-4783	115	T-	pp	-0.0593	2.7271	1.7709	321.5	212.9	99.0	16S	175W
1613 Oct 28	15:11:39	102	18	-4777	120	T+	pp	0.1064	2.7115	1.6149	377.3	234.1	102.3	13N	128E
1614 Apr 24	04:28:47	101	18	-4771	125	P	a-	-0.7766	1.4083	0.4573	275.5	138.4	-	14S	68W
1614 Oct 17	15:18:15	101	18	-4765	130	P	t-	0.8044	1.4191	0.3458	316.9	135.9	-	10N	127E
1615 Mar 15	08:16:13	100	18	-4760	97	N	-a	1.1667	0.7302	-0.2955	231.5	-	-	3N	121W
1615 Apr 13	19:38:27	100	18	-4759	135	Nb	a-	-1.5327	0.0400	-0.9486	55.8	-	-	10S	65E
1615 Sep 07	10:47:19	100	18	-4754	102	N	-a	-1.2123	0.6236	-0.3567	206.6	-	-	7S	161W
1615 Oct 06	21:30:13	99	18	-4753	140	N	a-	1.4676	0.1731	-0.8428	117.6	-	-	6N	34E
1616 Mar 03	13:19:27	99	18	-4748	107	P	-t	0.4820	2.0142	0.9336	353.6	203.4	-	7N	164E
1616 Aug 27	02:31:49	98	18	-4742	112	T	-a	-0.4643	1.9799	1.0319	303.2	188.6	26.4	10S	37W
1617 Feb 20	12:58:53	98	17	-4736	117	T-	pp	-0.2186	2.5056	1.4090	374.0	229.3	91.4	11N	169E
1617 Aug 16	19:15:09	97	17	-4730	122	T+	p-	0.2621	2.3567	1.3970	318.9	207.0	83.7	13S	72E
1618 Feb 09	14:33:23	96	17	-4724	127	P	a-	-0.9028	1.2327	0.1708	295.5	96.3	-	14N	145E
1618 Aug 06	08:19:42	96	17	-4718	132	N	t-	1.0514	0.9321	-0.0742	254.5	-	-	16S	124W
1618 Dec 31	11:19:57	95	17	-4713	99	N	-a	1.1997	0.6493	-0.3360	206.9	-	-	24N	168W
1619 Jan 29	23:07:06	95	17	-4712	137	N	a-	-1.5311	0.0519	-0.9546	63.6	-	-	16N	17E
1619 Jun 27	00:04:47	94	17	-4707	104	P	-t	-0.9390	1.1691	0.1018	300.3	77.7	-	24S	0W
1619 Dec 21	02:49:27	94	17	-4701	109	P	-a	0.5298	1.8716	0.8998	300.8	180.0	-	24N	42W
1620 Jun 15	00:50:48	93	17	-4695	114	T-	pp	-0.1735	2.5684	1.5114	366.6	230.2	97.9	24S	12W
1620 Dec 09	17:19:12	92	17	-4689	119	T-	p-	-0.1423	2.5987	1.5951	332.2	214.3	95.1	23N	99E
1621 Jun 04	06:32:44	92	17	-4683	124	P	a-	0.5970	1.7669	0.7582	320.0	180.9	-	22S	98W
1621 Nov 29	02:23:00	91	17	-4677	129	P	t-	-0.8746	1.2832	0.2237	298.1	108.8	-	21N	38W
1622 Apr 25	11:37:46	90	17	-4672	96	N	-a	-1.2353	0.5670	-0.3845	191.5	-	-	14S	175W
1622 May 24	19:18:15	90	17	-4671	134	N	a-	1.3047	0.4440	-0.5161	174.4	-	-	20S	70E
1622 Oct 19	09:54:36	90	17	-4666	101	N	-t	1.4097	0.3185	-0.7749	172.0	-	-	11N	152W
1623 Apr 15	04:23:32	89	17	-4660	106	P	-a	-0.5346	1.8566	0.8973	301.7	181.5	-	10S	66W
1623 Oct 08	11:18:41	88	16	-4654	111	P	-t	0.6735	1.6509	0.5942	326.9	169.1	-	6N	173W
1624 Apr 03	18:12:07	87	16	-4648	116	T+	pp	0.1945	2.5044	1.4977	338.2	216.8	92.5	5S	88E
1624 Sep 26	19:44:23	87	16	-4642	121	T-	pp	-0.0846	2.7014	1.7042	335.7	218.1	99.5	2N	62E
1625 Mar 24	01:11:27	86	16	-4636	126	P	t-	0.9666	1.1171	0.0523	289.1	55.0	-	1S	16W
1625 Sep 16	10:24:15	85	16	-4630	131	P	a-	-0.7904	1.3855	0.4294	274.7	134.8	-	3S	157W
1626 Feb 11	07:43:54	85	16	-4625	98	N	-t	-1.3035	0.5129	-0.5797	212.8	-	-	13N	112W
1626 Aug 07	18:56:22	84	16	-4619	103	N	-a	1.0655	0.8875	-0.0819	238.3	-	-	15S	77E
1626 Sep 06	03:05:57	84	16	-4618	141	N	a-	-1.4898	0.1029	-0.8544	85.7	-	-	8S	46W
1627 Jan 31	10:59:16	83	16	-4613	108	P	-h	-0.5675	1.8405	0.7933	329.5	185.2	-	17N	161W
1627 Jul 28	06:21:39	83	16	-4607	113	T	-h	0.3356	2.2527	1.2318	343.4	213.5	71.4	19S	94W
1628 Jan 20	21:27:25	82	16	-4601	118	T+	p-	0.1499	2.5797	1.5861	328.0	212.5	94.2	20N	41E
1628 Jul 16	10:36:56	81	16	-4595	123	T	t-	-0.4425	2.0782	1.0146	356.9	210.5	19.9	22S	158W

1629 Jan 09	12:32:46	80	16	-4589	128	P	a-	0.8093	1.3581	0.3876	272.5	128.2	-	23N	174E
1629 Jul 05	11:11:36	80	16	-4583	133	N	t-	-1.1970	0.6937	-0.3696	241.8	-	-	24S	167W
1629 Nov 30	15:17:32	79	16	-4578	100	N	-a	-1.2625	0.5506	-0.4676	200.5	-	-	21N	129E
1629 Dec 30	03:40:30	79	15	-4577	138	N	a-	1.4894	0.1218	-0.8713	95.1	-	-	25N	54W
1630 May 26	05:01:21	78	15	-4572	105	P	-h	0.7788	1.4259	0.4318	293.8	141.7	-	20S	76W
1630 Nov 19	22:20:55	78	15	-4566	110	P	-h	-0.6100	1.7757	0.7024	337.1	181.4	-	19N	22E
1631 May 15	19:15:40	77	15	-4560	115	T+	pp	0.0051	2.8246	1.8721	320.8	213.0	99.8	19S	70E
1631 Nov 08	22:51:37	76	15	-4554	120	T+	pp	0.0806	2.7604	1.6607	378.2	234.7	103.5	17N	13E
1632 May 04	12:15:03	75	15	-4548	125	P	a-	-0.7196	1.5121	0.5625	282.2	151.2	-	17S	175E
1632 Oct 27	23:00:30	75	15	-4542	130	P	t-	0.7719	1.4790	0.4051	320.6	145.4	-	14N	11E
1633 Mar 25	16:05:28	74	15	-4537	97	N	-a	1.2080	0.6545	-0.3714	221.5	-	-	1S	121E
1633 Apr 24	03:17:43	74	15	-4536	135	N	a-	-1.4853	0.1272	-0.8618	98.9	-	-	14S	50W
1633 Sep 17	18:34:53	73	15	-4531	102	N	-a	-1.2576	0.5406	-0.4397	193.4	-	-	3S	81E
1633 Oct 17	05:29:16	73	15	-4530	140	N	a-	1.4307	0.2409	-0.7749	137.4	-	-	11N	86W
1634 Mar 14	20:53:00	73	15	-4525	107	P	-t	0.5184	1.9469	0.8675	351.2	198.9	-	3N	50E
1634 Sep 07	10:21:49	72	15	-4519	112	P	-a	-0.5196	1.8795	0.9294	299.4	182.2	-	7S	155W
1635 Mar 03	20:34:49	71	15	-4513	117	T-	pp	-0.1890	2.5579	1.4653	374.2	230.7	95.3	7N	55E
1635 Aug 28	02:53:00	70	15	-4507	122	T+	p-	0.2013	2.4705	1.5063	322.0	210.3	90.8	10S	43W
1636 Feb 20	22:34:48	70	15	-4501	127	P	a-	-0.8810	1.2699	0.2135	297.4	106.7	-	10N	25E
1636 Aug 16	15:29:54	69	15	-4495	132	P	t-	0.9862	1.0545	0.0426	268.5	47.8	-	13S	128E
1637 Jan 10	20:08:48	68	14	-4490	99	N	-a	1.2008	0.6463	-0.3368	206.0	-	-	23N	61E
1637 Feb 09	07:38:42	68	14	-4489	137	N	a-	-1.5165	0.0764	-0.9254	76.8	-	-	13N	111W
1637 Jul 07	06:28:08	67	14	-4484	104	Nx	-t	-1.0271	1.0080	-0.0604	284.0	-	-	24S	96W
1637 Dec 31	11:42:24	67	14	-4478	109	P	-a	0.5331	1.8660	0.8934	300.8	179.7	-	24N	174W
1638 Jun 26	07:21:46	66	14	-4472	114	T-	pp	-0.2595	2.4091	1.3549	362.7	225.3	86.8	24S	110W
1638 Dec 21	02:00:38	65	14	-4466	119	T-	pp	-0.1394	2.6057	1.5988	333.4	214.9	95.4	23N	30W
1639 Jun 15	13:32:41	64	14	-4460	124	P	a-	0.5177	1.9102	0.9059	325.1	192.1	-	23S	157E
1639 Dec 10	10:39:49	64	14	-4454	129	P	t-	-0.8696	1.2945	0.2308	300.2	110.7	-	22N	161W
1640 May 05	19:23:34	63	14	-4449	96	N	-a	-1.2900	0.4649	-0.4833	174.9	-	-	18S	68E
1640 Jun 04	02:45:05	63	14	-4448	134	N	a-	1.2341	0.5718	-0.3848	194.8	-	-	21S	42W
1640 Oct 29	17:27:10	62	14	-4443	101	N	-t	1.4391	0.2658	-0.8300	157.9	-	-	15N	94E
1641 Apr 25	12:14:35	62	14	-4437	106	P	-a	-0.5876	1.7589	0.8004	297.9	174.6	-	14S	176E
1641 Oct 18	19:00:24	61	14	-4431	111	P	-t	0.7062	1.5909	0.5340	322.3	161.4	-	11N	71E
1642 Apr 15	01:52:18	60	14	-4425	116	T+	pp	0.1463	2.5930	1.5860	340.5	219.3	97.0	10S	28W
1642 Oct 08	03:42:19	59	14	-4419	121	T-	pp	-0.0462	2.7718	1.7746	335.1	218.0	100.3	6N	58W
1643 Apr 04	08:33:33	59	14	-4413	126	P	t-	0.9222	1.1981	0.1341	297.4	87.2	-	5S	127W
1643 Sep 27	18:28:13	58	13	-4407	131	P	a-	-0.7469	1.4663	0.5085	279.7	144.8	-	1N	81E
1644 Feb 22	15:29:25	57	13	-4402	98	N	-t	-1.3241	0.4731	-0.6152	204.6	-	-	9N	131E
1644 Aug 18	02:25:16	57	13	-4396	103	N	-a	1.1320	0.7680	-0.2061	225.3	-	-	12S	36W
1644 Sep 16	10:59:46	57	13	-4395	141	N	a-	-1.4449	0.1874	-0.7741	115.1	-	-	4S	166W

1645 Feb 10	19:13:46	56	13	-4390	108	P	-h	-0.5789	1.8169	0.7749	326.9	183.1	-	13N	75E
1645 Aug 07	13:19:25	55	13	-4384	113	T	-h	0.4115	2.1160	1.0900	340.9	207.2	46.7	16S	162E
1646 Jan 31	06:07:04	54	13	-4378	118	T+	p-	0.1417	2.5929	1.6030	327.1	212.4	94.7	17N	88W
1646 Jul 27	17:06:35	54	13	-4372	123	T	t-	-0.3586	2.2334	1.1670	362.9	219.4	64.2	19S	105E
1647 Jan 20	21:23:09	53	13	-4366	128	P	a-	0.8040	1.3674	0.3978	273.1	129.7	-	21N	43E
1647 Jul 16	17:39:13	52	13	-4360	133	N	t-	-1.1101	0.8526	-0.2097	263.4	-	-	22S	97E
1647 Dec 11	23:51:13	52	13	-4355	100	N	-a	-1.2717	0.5358	-0.4864	198.8	-	-	22N	1E
1648 Jan 10	12:26:14	52	13	-4354	138	N	a-	1.4898	0.1219	-0.8730	95.4	-	-	23N	176E
1648 Jun 05	12:11:38	51	13	-4349	105	P	-h	0.8497	1.2936	0.3042	282.9	120.8	-	22S	177E
1648 Nov 30	06:26:41	50	13	-4343	110	P	-h	-0.6238	1.7525	0.6748	337.0	179.1	-	21N	99W
1649 May 26	02:48:35	50	13	-4337	115	T+	pp	0.0732	2.6981	1.7489	319.7	212.2	98.6	21S	43W
1649 Nov 19	06:38:53	49	13	-4331	120	T+	pp	0.0608	2.7979	1.6956	378.7	235.0	104.1	20N	103W
1650 May 15	19:54:18	48	12	-4325	125	P	a-	-0.6571	1.6265	0.6778	288.9	163.1	-	20S	60E
1650 Nov 08	06:52:24	47	12	-4319	130	P	t-	0.7465	1.5257	0.4515	323.2	152.0	-	17N	107W
1651 Apr 05	23:45:28	47	12	-4314	97	N	-a	1.2558	0.5669	-0.4591	208.6	-	-	5S	5E
1651 May 05	10:48:38	47	12	-4313	135	N	a-	-1.4322	0.2250	-0.7646	130.9	-	-	18S	163W
1651 Sep 29	02:31:08	46	12	-4308	102	N	-a	-1.2966	0.4691	-0.5115	180.9	-	-	1N	39W
1651 Oct 28	13:37:35	46	12	-4307	140	N	a-	1.4004	0.2964	-0.7191	151.2	-	-	14N	151E
1652 Mar 25	04:17:29	46	12	-4302	107	P	-t	0.5617	1.8668	0.7888	348.0	192.7	-	2S	62W
1652 Sep 17	18:19:28	45	12	-4296	112	P	-a	-0.5687	1.7906	0.8381	295.7	175.7	-	2S	84E
1653 Mar 14	04:04:30	44	12	-4290	117	T-	pp	-0.1538	2.6204	1.5320	374.2	232.1	98.9	2N	59W
1653 Sep 07	10:35:25	43	12	-4284	122	T+	pp	0.1448	2.5766	1.6076	324.5	212.6	95.4	6S	159W
1654 Mar 03	06:31:28	43	12	-4278	127	P	a-	-0.8545	1.3156	0.2650	299.9	117.6	-	6N	95W
1654 Aug 27	22:43:59	42	12	-4272	132	P	t-	0.9246	1.1704	0.1526	280.6	89.3	-	9S	19E
1655 Jan 22	04:54:44	42	12	-4267	99	N	-a	1.2045	0.6380	-0.3424	204.4	-	-	21N	70W
1655 Feb 20	16:03:52	41	12	-4266	137	N	a-	-1.4963	0.1110	-0.8858	91.9	-	-	9N	122E
1655 Jul 18	12:53:09	41	12	-4261	104	N	-t	-1.1132	0.8507	-0.2191	265.4	-	-	22S	169E
1656 Jan 11	20:33:33	40	12	-4255	109	P	-a	0.5380	1.8572	0.8844	300.7	179.2	-	22N	54E
1656 Jul 06	13:55:39	40	12	-4249	114	T	-t	-0.3437	2.2535	1.2015	357.8	218.6	69.0	23S	152E
1656 Dec 31	10:41:02	39	11	-4243	119	T-	pp	-0.1360	2.6133	1.6037	334.6	215.4	95.7	23N	159W
1657 Jun 25	20:33:50	38	11	-4237	124	T	a-	0.4381	2.0544	1.0539	329.2	201.0	35.9	23S	52E
1657 Dec 20	18:57:59	38	11	-4231	129	P	t-	-0.8662	1.3026	0.2353	302.0	112.0	-	23N	75E
1658 May 17	03:01:52	37	11	-4226	96	N	-a	-1.3511	0.3514	-0.5940	153.5	-	-	21S	47W
1658 Jun 15	10:07:59	37	11	-4225	134	N	a-	1.1594	0.7073	-0.2463	213.2	-	-	22S	152W
1658 Nov 10	01:09:23	36	11	-4220	101	N	-t	1.4610	0.2268	-0.8712	146.3	-	-	18N	21W
1658 Dec 09	20:10:46	36	11	-4219	139	N	t-	-1.5785	0.0140	-1.0897	37.2	-	-	22N	56E
1659 May 06	19:56:12	36	11	-4214	106	P	-a	-0.6484	1.6470	0.6890	292.9	165.3	-	17S	60E
1659 Oct 30	02:52:51	35	11	-4208	111	P	-t	0.7310	1.5455	0.4885	318.5	155.1	-	14N	47W
1660 Apr 25	09:22:00	35	11	-4202	116	T+	pp	0.0901	2.6965	1.6889	342.6	221.5	100.5	13S	141W
1660 Oct 18	11:50:07	34	11	-4196	121	T-	pp	-0.0151	2.8288	1.8315	334.3	217.5	100.5	10N	179E

1661 Apr 14	15:46:18	33	11	-4190	126	P	t-	0.8709	1.2919	0.2286	306.3	112.5	-	9S	124E
1661 Oct 08	02:39:02	33	11	-4184	131	P	a-	-0.7089	1.5369	0.5771	283.8	152.4	-	5N	43W
1662 Mar 04	23:10:07	32	11	-4179	98	N	-t	-1.3487	0.4255	-0.6580	194.4	-	-	5N	15E
1662 Aug 29	09:57:00	32	11	-4173	103	N	-a	1.1951	0.6547	-0.3246	211.2	-	-	8S	149W
1662 Sep 27	18:59:21	31	11	-4172	141	N	a-	-1.4053	0.2625	-0.7036	135.6	-	-	1N	73E
1663 Feb 22	03:23:34	31	11	-4167	108	P	-h	-0.5950	1.7845	0.7481	323.9	180.2	-	10N	47W
1663 Aug 18	20:20:08	30	10	-4161	113	P	-h	0.4840	1.9858	0.9543	337.7	199.4	-	13S	56E
1664 Feb 11	14:43:15	30	10	-4155	118	T+	p-	0.1304	2.6116	1.6258	326.2	212.4	95.4	14N	143E
1664 Aug 06	23:40:03	29	10	-4149	123	T	pp	-0.2780	2.3829	1.3135	367.7	226.1	83.5	17S	6E
1665 Jan 31	06:10:20	29	10	-4143	128	P	a-	0.7964	1.3807	0.4124	274.0	131.8	-	18N	89W
1665 Jul 27	00:11:35	28	10	-4137	133	Nx	t-	-1.0261	1.0063	-0.0554	281.1	-	-	20S	1W
1665 Dec 22	08:25:41	28	10	-4132	100	N	-a	-1.2796	0.5231	-0.5027	197.4	-	-	22N	126W
1666 Jan 20	21:09:12	27	10	-4131	138	N	a-	1.4887	0.1246	-0.8717	96.6	-	-	21N	46E
1666 Jun 16	19:20:40	27	10	-4126	105	P	-h	0.9222	1.1585	0.1732	270.6	92.6	-	23S	70E
1666 Dec 11	14:35:35	26	10	-4120	110	P	-h	-0.6344	1.7351	0.6536	337.2	177.3	-	23N	140E
1667 Jun 06	10:18:29	26	10	-4114	115	T+	pp	0.1438	2.5671	1.6206	317.9	210.4	95.2	23S	155W
1667 Nov 30	14:31:25	25	10	-4108	120	T+	pp	0.0456	2.8269	1.7227	379.1	235.1	104.5	22N	140E
1668 May 26	03:28:46	25	10	-4102	125	P	a-	-0.5909	1.7477	0.7993	295.3	173.9	-	22S	53W
1668 Nov 18	14:52:17	24	10	-4096	130	P	h-	0.7274	1.5606	0.4865	324.7	156.6	-	20N	133E
1669 Apr 16	07:15:33	24	10	-4091	97	N	-h	1.3108	0.4661	-0.5602	191.6	-	-	9S	108W
1669 May 15	18:11:55	24	10	-4090	135	N	h-	-1.3734	0.3333	-0.6574	158.2	-	-	20S	86E
1669 Oct 09	10:35:59	23	10	-4085	102	N	-a	-1.3293	0.4094	-0.5717	169.6	-	-	5N	161W
1669 Nov 07	21:54:05	23	10	-4084	140	N	a-	1.3761	0.3406	-0.6744	160.9	-	-	18N	27E
1670 Apr 05	11:31:32	23	9	-4079	107	P	-t	0.6128	1.7721	0.6956	343.5	184.2	-	6S	172W
1670 Sep 29	02:24:54	22	9	-4073	112	P	-a	-0.6114	1.7136	0.7584	292.3	169.4	-	2N	38W
1671 Mar 25	11:23:34	22	9	-4067	117	T-	pp	-0.1096	2.6992	1.6154	374.1	233.4	102.3	2S	169W
1671 Sep 18	18:25:15	21	9	-4061	122	T+	pp	0.0951	2.6705	1.6963	326.5	214.2	98.1	2S	82E
1672 Mar 13	14:20:47	21	9	-4055	127	P	a-	-0.8211	1.3738	0.3293	303.1	129.5	-	2N	147E
1672 Sep 07	06:03:26	20	9	-4049	132	P	t-	0.8682	1.2770	0.2531	291.1	113.8	-	5S	92W
1673 Feb 01	13:38:12	20	9	-4044	99	N	-a	1.2108	0.6249	-0.3524	202.1	-	-	18N	160E
1673 Mar 03	00:23:59	20	9	-4043	137	N	a-	-1.4715	0.1538	-0.8379	107.3	-	-	5N	4W
1673 Jul 28	19:20:13	20	9	-4038	104	N	-t	-1.1971	0.6976	-0.3739	244.3	-	-	20S	72E
1674 Jan 22	05:23:56	19	9	-4032	109	P	-a	0.5433	1.8473	0.8746	300.5	178.7	-	20N	78W
1674 Jul 17	20:30:09	19	9	-4026	114	T	-t	-0.4280	2.0980	1.0478	351.7	210.0	35.3	21S	54E
1675 Jan 11	19:21:43	18	9	-4020	119	T-	pp	-0.1334	2.6192	1.6073	335.8	216.0	96.0	22N	72E
1675 Jul 07	03:36:10	18	9	-4014	124	T	a-	0.3583	2.1991	1.2020	332.4	207.9	66.2	22S	53W
1676 Jan 01	03:16:17	17	9	-4008	129	P	t-	-0.8635	1.3091	0.2389	303.5	113.1	-	22N	48W
1676 May 27	10:37:27	17	9	-4003	96	N	-a	-1.4146	0.2337	-0.7095	126.4	-	-	23S	160W
1676 Jun 25	17:32:05	17	9	-4002	134	N	a-	1.0850	0.8426	-0.1086	228.9	-	-	22S	97E
1676 Nov 20	08:58:23	17	8	-3997	101	N	-t	1.4778	0.1967	-0.9027	136.6	-	-	21N	138W

1676	Dec 20	04:11:42	16	8	-3996	139	N	t-	-1.5711	0.0284	-1.0768	52.9	-	-	22N	63W
1677	May 17	03:32:57	16	8	-3991	106	P	-a	-0.7127	1.5290	0.5711	286.9	153.7	-	20S	54W
1677	Nov 09	10:52:39	16	8	-3985	111	P	-t	0.7504	1.5097	0.4530	315.3	149.8	-	18N	167W
1678	May 06	16:44:20	15	8	-3979	116	T+	pp	0.0285	2.8099	1.8015	344.4	223.0	102.5	17S	108E
1678	Oct 29	20:06:20	15	8	-3973	121	T+	pp	0.0093	2.8395	1.8422	333.3	216.9	100.2	14N	54E
1679	Apr 25	22:48:28	15	8	-3967	126	P	t-	0.8116	1.4005	0.3378	315.7	134.9	-	13S	18E
1679	Oct 19	10:58:53	14	8	-3961	131	P	a-	-0.6784	1.5939	0.6321	287.0	158.0	-	9N	168W
1680	Mar 15	06:41:50	14	8	-3956	98	N	-t	-1.3805	0.3646	-0.7138	180.4	-	-	1N	99W
1680	Apr 13	23:18:01	14	8	-3955	136	Nb	t-	1.5495	0.0561	-1.0254	73.6	-	-	8S	11E
1680	Sep 08	17:35:17	14	8	-3950	103	N	-a	1.2521	0.5528	-0.4319	196.9	-	-	4S	95E
1680	Oct 08	03:06:26	14	8	-3949	141	N	a-	-1.3720	0.3258	-0.6449	150.6	-	-	5N	49W
1681	Mar 04	11:26:32	13	8	-3944	108	P	-h	-0.6173	1.7406	0.7102	320.2	176.2	-	6N	169W
1681	Aug 29	03:25:57	13	8	-3938	113	P	-h	0.5511	1.8655	0.8282	334.1	190.6	-	9S	51W
1682	Feb 21	23:13:11	13	8	-3932	118	T+	p-	0.1133	2.6408	1.6594	325.4	212.5	96.4	10N	15E
1682	Aug 18	06:17:11	12	8	-3926	123	T-	pp	-0.2006	2.5267	1.4538	371.3	230.8	95.0	13S	93W
1683	Feb 11	14:52:34	12	8	-3920	128	P	a-	0.7848	1.4011	0.4345	275.3	134.9	-	15N	141E
1683	Aug 07	06:48:53	12	7	-3914	133	P	t-	-0.9453	1.1546	0.0931	295.8	73.7	-	17S	101W
1684	Jan 02	17:00:33	11	7	-3909	100	N	-a	-1.2865	0.5119	-0.5168	196.2	-	-	22N	106E
1684	Feb 01	05:47:51	11	7	-3908	138	N	a-	1.4850	0.1319	-0.8653	99.6	-	-	19N	83W
1684	Jun 27	02:30:11	11	7	-3903	105	P	-h	0.9949	1.0233	0.0417	257.0	46.1	-	22S	37W
1684	Dec 21	22:47:24	11	7	-3897	110	P	-h	-0.6415	1.7235	0.6390	337.5	176.1	-	23N	18E
1685	Jun 16	17:45:42	11	7	-3891	115	T+	-p	0.2172	2.4315	1.4870	315.6	207.5	89.0	23S	94E
1685	Dec 10	22:29:22	10	7	-3885	120	T+	pp	0.0346	2.8475	1.7422	379.2	235.1	104.7	23N	21E
1686	Jun 06	10:58:28	10	7	-3879	125	P	a-	-0.5211	1.8759	0.9272	301.4	183.5	-	23S	165W
1686	Nov 29	22:59:47	10	7	-3873	130	P	h-	0.7135	1.5859	0.5125	325.5	159.7	-	22N	12E
1687	Apr 27	14:36:01	10	7	-3868	97	N	-h	1.3727	0.3529	-0.6739	169.1	-	-	13S	141E
1687	May 27	01:28:11	10	7	-3867	135	N	h-	-1.3096	0.4512	-0.5410	182.7	-	-	23S	23W
1687	Oct 20	18:50:04	10	7	-3862	102	N	-a	-1.3555	0.3617	-0.6199	159.7	-	-	9N	74E
1687	Nov 19	06:18:47	10	7	-3861	140	N	a-	1.3576	0.3742	-0.6401	167.6	-	-	21N	99W
1688	Apr 15	18:37:20	9	7	-3856	107	P	-t	0.6704	1.6657	0.5909	337.8	173.0	-	10S	81E
1688	Oct 09	10:37:18	9	7	-3850	112	P	-a	-0.6485	1.6469	0.6888	289.1	163.2	-	6N	162W
1689	Apr 04	18:36:37	9	7	-3844	117	T-	pp	-0.0599	2.7880	1.7088	373.7	234.2	104.7	6S	82E
1689	Sep 29	02:21:14	9	7	-3838	122	T+	pp	0.0510	2.7541	1.7746	328.3	215.2	99.5	3N	38W
1690	Mar 24	22:03:02	9	6	-3832	127	P	a-	-0.7809	1.4443	0.4062	306.8	141.8	-	3S	30E
1690	Sep 18	13:28:35	9	6	-3826	132	P	t-	0.8170	1.3742	0.3440	300.1	131.2	-	1S	156E
1691	Feb 12	22:16:34	8	6	-3821	99	N	-a	1.2219	0.6028	-0.3711	198.5	-	-	15N	30E
1691	Mar 14	08:36:41	8	6	-3820	137	N	a-	-1.4403	0.2084	-0.7779	123.9	-	-	1N	127W
1691	Aug 09	01:52:20	8	6	-3815	104	N	-t	-1.2766	0.5527	-0.5209	220.7	-	-	17S	26W
1692	Feb 02	14:08:39	8	6	-3809	109	P	-a	0.5536	1.8282	0.8560	299.9	177.5	-	17N	152E
1692	Jul 28	03:10:54	8	6	-3803	114	P	-t	-0.5080	1.9505	0.9017	344.8	199.6	-	19S	46W

1693 Jan 22	03:58:34	8	6	-3797	119	T-	pp	-0.1279	2.6302	1.6166	337.0	216.7	96.6	19N	57W
1693 Jul 17	10:41:01	8	6	-3791	124	T	p-	0.2794	2.3425	1.3482	334.6	213.0	82.4	21S	159W
1694 Jan 11	11:33:04	8	6	-3785	129	P	t-	-0.8599	1.3167	0.2444	305.1	114.6	-	21N	171W
1694 Jun 07	18:08:12	8	6	-3780	96	N	-a	-1.4824	0.1085	-0.8330	87.0	-	-	24S	88E
1694 Jul 07	00:55:24	8	6	-3779	134	P	a-	1.0090	0.9813	0.0317	242.9	39.0	-	22S	13W
1694 Dec 01	16:54:28	8	6	-3774	101	N	-t	1.4890	0.1766	-0.9237	129.5	-	-	23N	104E
1694 Dec 31	12:13:57	8	6	-3773	139	N	t-	-1.5646	0.0405	-1.0653	63.1	-	-	22N	177E
1695 May 28	11:01:57	8	6	-3768	106	P	-a	-0.7831	1.4003	0.4417	279.4	138.2	-	22S	166W
1695 Nov 20	19:02:05	8	6	-3762	111	P	-t	0.7629	1.4864	0.4303	312.7	146.1	-	21N	71E
1696 May 16	23:58:19	8	6	-3756	116	T-	pp	-0.0392	2.7910	1.7813	345.7	223.6	102.7	20S	1W
1696 Nov 09	04:30:20	8	5	-3750	121	T+	pp	0.0281	2.8050	1.8078	332.4	216.3	99.8	17N	71W
1697 May 06	05:42:53	8	5	-3744	126	P	t-	0.7461	1.5203	0.4581	325.0	154.6	-	16S	87W
1697 Oct 29	19:25:59	8	5	-3738	131	P	a-	-0.6537	1.6403	0.6764	289.4	162.2	-	13N	65E
1698 Mar 26	14:06:35	8	5	-3733	98	N	-t	-1.4183	0.2925	-0.7805	162.1	-	-	4S	149E
1698 Apr 25	06:11:32	8	5	-3732	136	N	t-	1.4877	0.1675	-0.9101	125.8	-	-	12S	93W
1698 Sep 20	01:18:38	8	5	-3727	103	N	-a	1.3044	0.4599	-0.5307	181.9	-	-	0N	22W
1698 Oct 19	11:20:31	8	5	-3726	141	N	a-	-1.3448	0.3783	-0.5973	162.0	-	-	9N	173W
1699 Mar 15	19:23:52	8	5	-3721	108	P	-h	-0.6453	1.6862	0.6620	315.8	171.0	-	1N	71E
1699 Sep 09	10:37:09	8	5	-3715	113	P	-h	0.6130	1.7550	0.7117	330.1	180.8	-	5S	160W
1700 Mar 05	07:37:27	8	5	-3709	118	T+	p-	0.0909	2.6794	1.7026	324.6	212.7	97.5	6N	111W
1700 Aug 29	13:01:24	8	5	-3703	123	T-	pp	-0.1291	2.6596	1.5833	373.9	233.7	101.7	9S	165E

18TH CENTURY CE

In the 18th century CE the total number of lunar eclipses was 256 lunar eclipses: 98 penumbral lunar eclipses, 98 partial lunar eclipses, 60 total lunar eclipses (47 central total lunar eclipses, 13 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
ECLIPSE															

1701 Feb 22	23:29:56	8	5	-3697	128	P	a-	0.7695	1.4283	0.4634	277.1	138.8	-	11N	11E
1701 Aug 18	13:32:17	8	5	-3691	133	P	t-	-0.8684	1.2956	0.2341	307.9	114.3	-	14S	158E
1702 Jan 14	01:33:36	8	5	-3686	100	N	-a	-1.2943	0.4989	-0.5323	194.5	-	-	20N	21W
1702 Feb 12	14:21:25	8	5	-3685	138	N	a-	1.4779	0.1451	-0.8527	104.6	-	-	15N	149E
1702 Jul 09	09:41:33	8	5	-3680	105	N	-h	1.0665	0.8904	-0.0882	242.2	-	-	21S	144W
1703 Jan 03	06:58:06	8	5	-3674	110	P	-h	-0.6493	1.7103	0.6236	337.7	174.7	-	22N	103W
1703 Jun 29	01:12:46	8	5	-3668	115	T	-p	0.2910	2.2954	1.3522	312.5	203.5	79.5	23S	18W
1703 Dec 23	06:29:53	8	5	-3662	120	T+	pp	0.0258	2.8639	1.7582	379.2	235.1	104.7	23N	98W
1704 Jun 17	18:25:45	8	5	-3656	125	T	a-	-0.4495	2.0078	1.0583	307.0	191.7	35.7	24S	84E
1704 Dec 11	07:11:29	9	5	-3650	130	P	a-	0.7023	1.6057	0.5336	325.8	162.0	-	24N	110W
1705 May 08	21:47:47	9	5	-3645	97	N	-h	1.4405	0.2290	-0.7987	138.2	-	-	16S	33E
1705 Jun 07	08:39:02	9	5	-3644	135	N	h-	-1.2420	0.5763	-0.4180	204.8	-	-	24S	130W
1705 Nov 01	03:12:45	9	5	-3639	102	N	-a	-1.3754	0.3254	-0.6567	151.7	-	-	13N	52W
1705 Nov 30	14:50:03	9	5	-3638	140	N	a-	1.3440	0.3987	-0.6145	172.1	-	-	23N	134E
1706 Apr 28	01:31:44	9	5	-3633	107	P	-t	0.7365	1.5436	0.4703	330.3	157.6	-	13S	23W
1706 Oct 21	18:58:21	9	5	-3627	112	P	-a	-0.6785	1.5934	0.6324	286.5	157.8	-	10N	72E
1707 Apr 17	01:39:36	9	5	-3621	117	T-	pp	-0.0018	2.8922	1.8178	372.8	234.5	105.7	10S	25W
1707 Oct 11	10:24:59	9	5	-3615	122	T+	pp	0.0139	2.8248	1.8399	329.8	215.8	100.1	7N	159W
1708 Apr 05	05:37:45	9	5	-3609	127	P	a-	-0.7338	1.5276	0.4959	311.0	154.0	-	7S	84W
1708 Sep 29	21:01:04	9	5	-3603	132	P	t-	0.7725	1.4590	0.4224	307.6	144.2	-	3N	42E
1709 Feb 24	06:50:39	9	5	-3598	99	N	-a	1.2369	0.5734	-0.3968	193.8	-	-	11N	99W
1709 Mar 25	16:43:31	9	5	-3597	137	N	a-	-1.4038	0.2726	-0.7082	140.3	-	-	3S	110E
1709 Aug 20	08:27:56	9	5	-3592	104	N	-t	-1.3530	0.4138	-0.6621	193.6	-	-	14S	126W
1709 Sep 19	00:30:44	9	5	-3591	142	Nb	t-	1.5440	0.0643	-1.0135	78.3	-	-	0S	10W
1710 Feb 13	22:50:15	9	5	-3586	109	P	-a	0.5663	1.8044	0.8330	299.2	176.0	-	14N	21E
1710 Aug 09	09:55:48	9	5	-3580	114	P	-t	-0.5854	1.8080	0.7602	337.2	187.4	-	16S	147W
1711 Feb 03	12:31:29	9	5	-3574	119	T-	pp	-0.1197	2.6457	1.6309	338.2	217.5	97.3	17N	176E
1711 Jul 29	17:50:24	9	5	-3568	124	T+	p-	0.2033	2.4810	1.4889	335.8	216.5	92.2	19S	94E
1712 Jan 23	19:47:09	9	5	-3562	129	P	t-	-0.8545	1.3274	0.2535	306.8	116.8	-	19N	66E
1712 Jul 18	08:21:47	9	4	-3556	134	P	a-	0.9351	1.1162	0.1677	254.8	87.9	-	20S	124W
1712 Dec 13	00:53:52	9	4	-3551	101	N	-t	1.4978	0.1604	-0.9401	123.5	-	-	25N	15W
1713 Jan 11	20:14:53	9	4	-3550	139	N	t-	-1.5570	0.0545	-1.0512	73.1	-	-	20N	58E
1713 Jun 08	18:28:14	9	4	-3545	106	P	-a	-0.8551	1.2686	0.3090	270.7	118.2	-	24S	83E
1713 Dec 02	03:17:08	9	4	-3539	111	P	-h	0.7716	1.4699	0.4150	310.6	143.4	-	23N	52W
1714 May 29	07:05:02	9	4	-3533	116	T-	pp	-0.1120	2.6582	1.6468	346.2	223.1	100.3	22S	107W
1714 Nov 21	13:01:43	9	4	-3527	121	T+	pp	0.0414	2.7803	1.7836	331.5	215.7	99.4	20N	161E
1715 May 18	12:28:52	9	4	-3521	126	P	t-	0.6740	1.6526	0.5905	334.2	172.2	-	19S	172E
1715 Nov 11	04:00:14	9	4	-3515	131	P	a-	-0.6348	1.6760	0.7102	291.2	165.1	-	17N	64W
1716 Apr 06	21:22:31	9	4	-3510	98	N	-t	-1.4634	0.2069	-0.8605	136.9	-	-	8S	40E

1716 May 06	12:57:42	9	4	-3509	136	N	t-	1.4193	0.2912	-0.7828	163.8	-	-	15S	165E
1716 Oct 01	09:10:09	10	4	-3504	103	N	-a	1.3494	0.3803	-0.6162	167.4	-	-	5N	141W
1716 Oct 30	19:42:20	10	4	-3503	141	N	a-	-1.3239	0.4189	-0.5613	170.3	-	-	13N	61E
1717 Mar 27	03:13:40	10	4	-3498	108	P	-h	-0.6800	1.6193	0.6014	310.5	164.2	-	3S	47W
1717 Sep 20	17:54:24	10	4	-3492	113	P	-h	0.6690	1.6554	0.6060	326.1	170.2	-	0S	90E
1718 Mar 16	15:54:35	10	4	-3486	118	T+	p-	0.0622	2.7297	1.7576	323.9	212.9	98.5	2N	124E
1718 Sep 09	19:52:28	10	4	-3480	123	T-	pp	-0.0636	2.7818	1.7016	375.6	235.3	105.0	5S	61E
1719 Mar 06	07:59:12	10	4	-3474	128	P	a-	0.7478	1.4671	0.5043	279.6	144.0	-	7N	117W
1719 Aug 29	20:24:03	10	4	-3468	133	P	t-	-0.7975	1.4259	0.3640	317.6	139.5	-	10S	54E
1720 Jan 25	10:04:08	10	4	-3463	100	N	-a	-1.3033	0.4833	-0.5498	192.4	-	-	18N	148W
1720 Feb 23	22:48:33	10	4	-3462	138	N	a-	1.4667	0.1659	-0.8322	112.0	-	-	11N	22E
1720 Jul 19	16:55:33	10	4	-3457	105	N	-a	1.1367	0.7604	-0.2158	226.0	-	-	20S	107E
1720 Aug 18	02:31:48	10	4	-3456	143	N	a-	-1.4937	0.1214	-0.8866	99.3	-	-	15S	37W
1721 Jan 13	15:08:18	10	4	-3451	110	P	-t	-0.6569	1.6973	0.6090	337.7	173.4	-	21N	135E
1721 Jul 09	08:39:47	10	4	-3445	115	T	-p	0.3651	2.1591	1.2167	308.8	198.2	65.3	22S	129W
1722 Jan 02	14:32:52	10	4	-3439	120	T+	pp	0.0187	2.8767	1.7714	379.0	235.1	104.8	23N	143E
1722 Jun 29	01:49:15	10	4	-3433	125	T	p-	-0.3750	2.1452	1.1941	312.0	198.8	62.7	24S	27W
1722 Dec 22	15:28:30	10	4	-3427	130	P	a-	0.6948	1.6186	0.5484	325.6	163.4	-	24N	128E
1723 May 20	04:51:54	10	4	-3422	97	Ne	-t	1.5130	0.0964	-0.9324	91.1	-	-	19S	73W
1723 Jun 18	15:45:34	10	4	-3421	135	N	t-	-1.1716	0.7067	-0.2902	224.8	-	-	25S	124E
1723 Nov 12	11:42:34	10	4	-3416	102	N	-a	-1.3902	0.2983	-0.6840	145.3	-	-	16N	179W
1723 Dec 11	23:25:50	10	4	-3415	140	N	a-	1.3334	0.4173	-0.5944	175.2	-	-	24N	7E
1724 May 08	08:19:43	10	4	-3410	107	P	-t	0.8072	1.4132	0.3412	321.1	137.1	-	16S	126W
1724 Nov 01	03:26:08	10	4	-3404	112	P	-a	-0.7028	1.5503	0.5864	284.4	153.1	-	14N	55W
1725 Apr 27	08:37:09	10	4	-3398	117	T+	pp	0.0614	2.7804	1.7107	371.4	233.8	104.8	14S	130W
1725 Oct 21	18:34:40	10	4	-3392	122	T-	pp	-0.0177	2.8206	1.8302	331.1	216.2	100.1	11N	78E
1726 Apr 16	13:06:30	10	4	-3386	127	P	a-	-0.6806	1.6220	0.5966	315.3	165.7	-	11S	163E
1726 Oct 11	04:40:32	10	4	-3380	132	P	t-	0.7342	1.5326	0.4897	314.0	154.1	-	8N	74W
1727 Mar 07	15:16:36	10	4	-3375	99	N	-a	1.2592	0.5306	-0.4358	186.8	-	-	6N	134E
1727 Apr 06	00:41:51	10	4	-3374	137	N	a-	-1.3596	0.3509	-0.6246	157.5	-	-	7S	10W
1727 Aug 31	15:12:02	10	4	-3369	104	N	-t	-1.4223	0.2879	-0.7905	163.4	-	-	10S	133E
1727 Sep 30	07:40:10	10	4	-3368	142	N	t-	1.4949	0.1567	-0.9258	121.6	-	-	4N	118W
1728 Feb 25	07:24:24	10	4	-3363	109	P	-a	0.5855	1.7687	0.7984	297.9	173.6	-	10N	107W
1728 Aug 19	16:48:39	10	4	-3357	114	P	-t	-0.6570	1.6763	0.6292	329.1	173.9	-	13S	109E
1729 Feb 13	20:57:43	10	4	-3351	119	T-	pp	-0.1065	2.6705	1.6548	339.5	218.4	98.2	13N	49E
1729 Aug 09	01:05:16	10	4	-3345	124	T+	pp	0.1306	2.6136	1.6232	336.2	218.4	98.0	16S	15W
1730 Feb 03	03:55:44	10	4	-3339	129	P	t-	-0.8452	1.3449	0.2702	309.0	120.6	-	16N	56W
1730 Jul 29	15:49:45	10	4	-3333	134	P	a-	0.8619	1.2503	0.3022	265.2	115.5	-	18S	124E
1730 Dec 24	08:58:03	10	4	-3328	101	N	-t	1.5033	0.1501	-0.9498	119.4	-	-	25N	134W
1731 Jan 23	04:14:11	10	4	-3327	139	N	t-	-1.5478	0.0710	-1.0338	83.3	-	-	18N	61W

1731 Jun 20	01:49:42	11	4	-3322	106	P	-a	-0.9308	1.1306	0.1693	260.3	89.4	-	24S	27W
1731 Dec 13	11:38:05	11	4	-3316	111	P	-h	0.7765	1.4601	0.4069	308.9	141.8	-	24N	176W
1732 Jun 08	14:06:11	11	4	-3310	116	T-	-p	-0.1887	2.5185	1.5049	346.0	221.3	94.6	23S	148E
1732 Dec 01	21:39:42	11	4	-3304	121	T+	pp	0.0502	2.7638	1.7678	330.5	215.1	99.0	22N	33E
1733 May 28	19:08:09	11	4	-3298	126	P	t-	0.5967	1.7945	0.7324	342.9	187.6	-	21S	72E
1733 Nov 21	12:40:54	11	4	-3292	131	P	a-	-0.6211	1.7020	0.7343	292.6	167.2	-	19N	166E
1734 Apr 18	04:32:25	11	4	-3287	98	N	-t	-1.5137	0.1118	-0.9500	101.2	-	-	12S	69W
1734 May 17	19:38:12	11	4	-3286	136	N	t-	1.3453	0.4252	-0.6453	195.1	-	-	18S	65E
1734 Oct 12	17:08:03	11	4	-3281	103	N	-a	1.3884	0.3118	-0.6907	153.2	-	-	9N	99E
1734 Nov 11	04:10:31	11	4	-3280	141	N	a-	-1.3089	0.4488	-0.5360	176.3	-	-	16N	66W
1735 Apr 07	10:56:50	11	4	-3275	108	P	-h	-0.7210	1.5409	0.5293	304.3	155.3	-	7S	164W
1735 Oct 02	01:19:12	11	4	-3269	113	P	-h	0.7178	1.5689	0.5134	322.2	159.5	-	4N	23W
1736 Mar 27	00:05:53	11	4	-3263	118	T+	pp	0.0283	2.7897	1.8222	323.1	213.0	99.2	3S	0W
1736 Sep 20	02:51:00	11	4	-3257	123	T-	pp	-0.0042	2.8925	1.8087	376.5	235.8	106.0	1S	44W
1737 Mar 16	16:22:12	11	4	-3251	128	P	a-	0.7211	1.5151	0.5542	282.6	149.9	-	2N	117E
1737 Sep 09	03:24:12	11	3	-3245	133	P	t-	-0.7326	1.5453	0.4829	325.4	157.4	-	6S	52W
1738 Feb 04	18:29:00	11	3	-3240	100	N	-a	-1.3165	0.4598	-0.5746	188.7	-	-	15N	86E
1738 Mar 06	07:07:16	11	3	-3239	138	N	a-	1.4493	0.1979	-0.8003	122.3	-	-	7N	103W
1738 Jul 31	00:13:24	11	3	-3234	105	N	-a	1.2043	0.6353	-0.3391	208.5	-	-	17S	2W
1738 Aug 29	09:51:17	11	3	-3233	143	N	a-	-1.4269	0.2433	-0.7636	138.6	-	-	11S	147W
1739 Jan 24	23:14:13	11	3	-3228	110	P	-t	-0.6674	1.6783	0.5892	337.3	171.5	-	19N	15E
1739 Jul 20	16:09:12	11	3	-3222	115	T	-a	0.4373	2.0265	1.0842	304.6	191.7	42.3	20S	119E
1740 Jan 13	22:33:32	11	3	-3216	120	T+	pp	0.0096	2.8928	1.7887	378.7	235.0	104.9	21N	24E
1740 Jul 09	09:13:15	11	3	-3210	125	T	p-	-0.3014	2.2813	1.3281	316.2	204.5	78.0	23S	137W
1741 Jan 01	23:47:05	11	3	-3204	130	P	a-	0.6880	1.6297	0.5621	325.2	164.6	-	24N	4E
1741 Jun 28	22:47:45	12	3	-3198	135	N	t-	-1.0982	0.8429	-0.1571	243.2	-	-	24S	19E
1741 Nov 22	20:19:32	12	3	-3193	102	N	-a	-1.3999	0.2805	-0.7019	140.9	-	-	19N	52E
1741 Dec 22	08:05:40	12	3	-3192	140	N	a-	1.3257	0.4305	-0.5792	177.2	-	-	25N	122W
1742 May 19	14:58:37	12	3	-3187	107	P	-t	0.8846	1.2706	0.1998	309.7	107.3	-	19S	135E
1742 Nov 12	12:01:43	12	3	-3181	112	P	-a	-0.7209	1.5184	0.5517	282.8	149.4	-	17N	176E
1743 May 08	15:26:07	12	3	-3175	117	T+	pp	0.1323	2.6480	1.5830	369.1	231.9	101.1	17S	128E
1743 Nov 02	02:52:31	12	3	-3169	122	T-	pp	-0.0421	2.7786	1.7829	332.4	216.4	99.7	15N	47W
1744 Apr 26	20:29:07	12	3	-3163	127	P	a-	-0.6212	1.7278	0.7086	319.7	176.8	-	14S	52E
1744 Oct 21	12:26:27	12	3	-3157	132	P	t-	0.7017	1.5953	0.5462	319.5	161.7	-	12N	169E
1745 Mar 17	23:37:14	12	3	-3152	99	N	-a	1.2862	0.4790	-0.4835	178.0	-	-	2N	8E
1745 Apr 16	08:34:52	12	3	-3151	137	N	a-	-1.3106	0.4383	-0.5320	174.0	-	-	11S	129W
1745 Sep 10	22:02:30	12	3	-3146	104	N	-t	-1.4863	0.1718	-0.9093	127.6	-	-	6S	29E
1745 Oct 10	14:56:54	12	3	-3145	142	N	t-	1.4515	0.2387	-0.8484	149.3	-	-	8N	132E
1746 Mar 07	15:52:17	12	3	-3140	109	P	-a	0.6096	1.7239	0.7548	296.1	170.3	-	6N	125E
1746 Aug 30	23:48:16	12	3	-3134	114	P	-t	-0.7237	1.5537	0.5070	320.6	158.7	-	9S	3E

1747 Feb 25	05:17:42	12	3	-3128	119	T-	pp	-0.0887	2.7033	1.6871	340.8	219.4	99.3	9N	76W
1747 Aug 20	08:26:59	12	3	-3122	124	T+	pp	0.0627	2.7375	1.7483	335.9	219.2	100.8	13S	126W
1748 Feb 14	11:58:05	12	3	-3116	129	P	t-	-0.8312	1.3706	0.2956	311.8	126.0	-	12N	176W
1748 Aug 08	23:23:27	12	3	-3110	134	P	a-	0.7930	1.3769	0.4287	273.9	134.9	-	15S	10E
1749 Jan 03	17:03:07	13	3	-3105	101	N	-t	1.5086	0.1397	-0.9589	115.1	-	-	24N	106E
1749 Feb 02	12:09:39	13	3	-3104	139	N	t-	-1.5352	0.0932	-1.0099	95.2	-	-	15N	179W
1749 Jun 30	09:09:16	13	3	-3099	106	P	-a	-1.0074	0.9913	0.0277	248.3	37.0	-	24S	136W
1749 Jul 29	16:30:59	13	3	-3098	144	Nb	a-	1.5084	0.0643	-0.8841	67.8	-	-	17S	113E
1749 Dec 23	20:02:10	13	3	-3093	111	P	-h	0.7796	1.4532	0.4024	307.4	140.7	-	24N	60E
1750 Jun 19	21:03:02	13	3	-3087	116	T-	-p	-0.2684	2.3736	1.3574	344.8	217.8	84.6	24S	45E
1750 Dec 13	06:21:46	13	3	-3081	121	T+	pp	0.0561	2.7524	1.7576	329.6	214.6	98.7	23N	97W
1751 Jun 09	01:41:58	13	3	-3075	126	P	t-	0.5151	1.9445	0.8819	350.8	200.9	-	22S	26W
1751 Dec 02	21:26:52	13	3	-3069	131	P	a-	-0.6116	1.7201	0.7511	293.5	168.6	-	21N	36E
1752 Apr 28	11:35:08	13	3	-3064	98	Ne	-t	-1.5699	0.0060	-1.0504	23.6	-	-	16S	175W
1752 May 28	02:13:58	13	3	-3063	136	N	t-	1.2667	0.5677	-0.4996	221.9	-	-	20S	34W
1752 Oct 23	01:12:54	13	3	-3058	103	N	-a	1.4212	0.2546	-0.7538	139.7	-	-	13N	22W
1752 Nov 21	12:43:58	13	3	-3057	141	N	a-	-1.2984	0.4701	-0.5189	180.6	-	-	19N	166E
1753 Apr 17	18:33:18	13	3	-3052	108	P	-h	-0.7684	1.4508	0.4455	297.1	143.9	-	11S	81E
1753 Oct 12	08:51:29	13	3	-3046	113	P	-h	0.7598	1.4950	0.4334	318.6	148.8	-	8N	136W
1754 Apr 07	08:08:01	13	3	-3040	118	T-	pp	-0.0140	2.8136	1.8507	322.1	212.9	99.4	7S	121W
1754 Oct 01	09:58:28	13	3	-3034	123	T+	pp	0.0478	2.8144	1.7268	376.9	235.5	105.2	3N	152W
1755 Mar 28	00:36:25	14	3	-3028	128	P	a-	0.6872	1.5764	0.6175	286.3	156.8	-	2S	7W
1755 Sep 20	10:34:08	14	3	-3022	133	P	t-	-0.6746	1.6520	0.5890	331.4	170.5	-	2S	160W
1756 Feb 16	02:47:51	14	3	-3017	100	N	-a	-1.3339	0.4282	-0.6071	183.2	-	-	11N	39W
1756 Mar 16	15:17:48	14	3	-3016	138	N	a-	1.4259	0.2407	-0.7575	134.7	-	-	3N	133E
1756 Aug 10	07:36:46	14	3	-3011	105	N	-a	1.2682	0.5174	-0.4557	189.7	-	-	14S	113W
1756 Sep 08	17:19:29	14	3	-3010	143	N	a-	-1.3659	0.3549	-0.6513	165.1	-	-	7S	100E
1757 Feb 04	07:16:53	14	3	-3005	110	P	-t	-0.6801	1.6551	0.5659	336.6	169.0	-	16N	106W
1757 Jul 30	23:39:48	14	3	-2999	115	P	-a	0.5087	1.8957	0.9529	299.7	183.9	-	18S	6E
1758 Jan 24	06:34:14	14	3	-2993	120	T+	pp	0.0004	2.9089	1.8067	378.2	234.9	104.9	19N	95W
1758 Jul 20	16:36:43	14	3	-2987	125	T-	p-	-0.2280	2.4175	1.4615	319.9	209.0	88.3	21S	112E
1759 Jan 13	08:06:35	14	3	-2981	130	P	a-	0.6812	1.6404	0.5762	324.8	165.9	-	22N	119W
1759 Jul 10	05:48:57	14	3	-2975	135	N	t-	-1.0247	0.9797	-0.0240	259.6	-	-	23S	86W
1759 Dec 04	05:01:58	14	3	-2970	102	N	-a	-1.4059	0.2694	-0.7128	137.9	-	-	21N	77W
1760 Jan 02	16:47:25	14	3	-2969	140	N	a-	1.3192	0.4411	-0.5661	178.6	-	-	24N	109E
1760 May 29	21:33:40	14	3	-2964	107	P	-t	0.9647	1.1232	0.0532	296.1	56.6	-	21S	36E
1760 Nov 22	20:41:36	14	3	-2958	112	P	-a	-0.7356	1.4928	0.5236	281.6	146.2	-	20N	47E
1761 May 18	22:11:58	14	3	-2952	117	T+	pp	0.2063	2.5100	1.4493	366.0	228.5	94.1	20S	26E
1761 Nov 12	11:15:47	15	3	-2946	122	T-	-p	-0.0614	2.7457	1.7450	333.6	216.6	99.3	18N	173W
1762 May 08	03:45:36	15	3	-2940	127	P	a-	-0.5558	1.8449	0.8317	323.9	186.9	-	18S	58W

1762	Nov 01	20:19:49	15	2	-2934	132	P	t-	0.6759	1.6455	0.5905	323.9	167.4	-	15N	51E
1763	Mar 29	07:49:15	15	2	-2929	99	N	-a	1.3205	0.4142	-0.5445	166.3	-	-	2S	115W
1763	Apr 27	16:20:36	15	2	-2928	137	N	a-	-1.2552	0.5375	-0.4280	190.2	-	-	15S	114E
1763	Sep 22	05:03:02	15	2	-2923	104	N	-t	-1.5421	0.0708	-1.0129	82.7	-	-	2S	77W
1763	Oct 21	22:22:43	15	2	-2922	142	N	t-	1.4153	0.3072	-0.7841	168.7	-	-	12N	20E
1764	Mar 18	00:11:05	15	2	-2917	109	P	-a	0.6410	1.6656	0.6977	293.6	165.5	-	1N	0W
1764	Sep 10	06:58:28	15	2	-2911	114	P	-t	-0.7824	1.4459	0.3993	312.3	142.8	-	5S	105W
1765	Mar 07	13:28:56	15	2	-2905	119	T-	pp	-0.0643	2.7483	1.7317	342.1	220.5	100.5	5N	161E
1765	Aug 30	15:55:31	15	2	-2899	124	T-	pp	-0.0004	2.8513	1.8629	335.0	218.9	101.4	9S	121E
1766	Feb 24	19:52:50	15	2	-2893	129	P	t-	-0.8116	1.4065	0.3317	315.3	133.0	-	9N	65E
1766	Aug 20	07:01:42	15	2	-2887	134	P	a-	0.7273	1.4978	0.5489	281.4	149.7	-	12S	105W
1767	Jan 15	01:08:12	15	2	-2882	101	N	-t	1.5141	0.1284	-0.9679	110.3	-	-	23N	14W
1767	Feb 13	19:59:00	15	2	-2881	139	N	t-	-1.5175	0.1245	-0.9762	109.7	-	-	12N	63E
1767	Jul 11	16:27:13	15	2	-2876	106	N	-a	-1.0846	0.8512	-0.1155	234.3	-	-	23S	115E
1767	Aug 10	00:02:52	15	2	-2875	144	N	a-	1.4447	0.1827	-0.7689	113.3	-	-	14S	0E
1768	Jan 04	04:29:31	15	2	-2870	111	P	-h	0.7811	1.4491	0.4011	306.0	140.1	-	24N	66W
1768	Jun 30	03:56:19	16	2	-2864	116	T	-h	-0.3500	2.2256	1.2062	342.7	212.5	68.0	24S	58W
1768	Dec 23	15:07:13	16	2	-2858	121	T+	pp	0.0597	2.7449	1.7518	328.7	214.1	98.4	24N	133E
1769	Jun 19	08:11:39	16	2	-2852	126	T	t-	0.4302	2.1005	1.0372	357.8	212.0	31.5	23S	123W
1769	Dec 13	06:17:03	16	2	-2846	131	P	a-	-0.6059	1.7312	0.7611	294.1	169.4	-	23N	96W
1770	Jun 08	08:45:13	16	2	-2840	136	N	t-	1.1836	0.7186	-0.3457	245.5	-	-	22S	132W
1770	Nov 03	09:24:28	16	2	-2835	103	N	-a	1.4478	0.2086	-0.8056	127.6	-	-	17N	145W
1770	Dec 02	21:22:32	16	2	-2834	141	N	a-	-1.2927	0.4825	-0.5104	183.3	-	-	21N	37E
1771	Apr 29	02:04:09	16	2	-2829	108	P	-h	-0.8212	1.3509	0.3516	288.6	129.3	-	15S	32W
1771	Oct 23	16:30:23	16	2	-2823	113	P	-h	0.7955	1.4323	0.3649	315.4	138.3	-	12N	108E
1772	Apr 17	16:04:45	16	2	-2817	118	T-	pp	-0.0611	2.7249	1.7663	321.0	212.3	98.6	11S	119E
1772	Oct 11	17:14:40	16	2	-2811	123	T+	pp	0.0928	2.7337	1.6426	377.0	234.7	103.3	8N	98E
1773	Apr 07	08:43:30	16	2	-2805	128	P	a-	0.6477	1.6479	0.6908	290.3	164.1	-	6S	130W
1773	Sep 30	17:53:06	16	2	-2799	133	P	t-	-0.6232	1.7466	0.6829	336.1	180.3	-	3N	89E
1774	Feb 26	10:58:52	16	2	-2794	100	N	-a	-1.3568	0.3865	-0.6493	175.3	-	-	7N	162W
1774	Mar 27	23:19:03	16	2	-2793	138	N	a-	1.3960	0.2955	-0.7026	148.9	-	-	2S	12E
1774	Aug 21	15:06:38	16	2	-2788	105	N	-a	1.3272	0.4090	-0.5634	169.9	-	-	11S	134E
1774	Sep 20	00:57:05	16	2	-2787	143	N	a-	-1.3119	0.4539	-0.5520	184.3	-	-	2S	15W
1775	Feb 15	15:10:58	16	2	-2782	110	P	-t	-0.6990	1.6202	0.5314	334.9	165.0	-	12N	136E
1775	Aug 11	07:15:46	16	2	-2776	115	P	-a	0.5755	1.7738	0.8298	294.5	175.3	-	15S	108W
1776	Feb 04	14:29:50	16	2	-2770	120	T-	pp	-0.0128	2.8846	1.7851	377.5	234.7	104.9	16N	146E
1776	Jul 31	00:02:02	16	2	-2764	125	T-	pp	-0.1566	2.5500	1.5907	322.8	212.2	94.9	18S	1E
1777	Jan 23	16:24:08	16	2	-2758	130	P	a-	0.6724	1.6547	0.5944	324.4	167.5	-	20N	117E
1777	Jul 20	12:48:46	16	2	-2752	135	P	t-	-0.9509	1.1173	0.1093	274.4	75.8	-	21S	169E
1777	Dec 14	13:48:59	17	2	-2747	102	N	-a	-1.4088	0.2638	-0.7178	136.3	-	-	22N	152E

1778 Jan 13	01:29:24	17	2	-2746	140	N	a-	1.3125	0.4519	-0.5522	180.0	-	-	23N	20W
1778 Jun 10	04:01:09	17	2	-2741	107	N	-t	1.0502	0.9661	-0.1033	279.4	-	-	22S	60W
1778 Dec 04	05:27:52	17	2	-2735	112	P	-a	-0.7448	1.4769	0.5055	281.0	144.2	-	22N	84W
1779 May 30	04:52:10	17	2	-2729	117	T	pp	0.2853	2.3630	1.3065	361.8	223.5	82.1	22S	74W
1779 Nov 23	19:44:46	17	2	-2723	122	T-	-p	-0.0752	2.7227	1.7172	334.9	216.8	98.9	20N	61E
1780 May 18	10:58:17	17	2	-2717	127	P	a-	-0.4863	1.9696	0.9620	327.6	195.8	-	20S	166W
1780 Nov 12	04:19:51	17	2	-2711	132	P	t-	0.6566	1.6839	0.6232	327.5	171.5	-	18N	69W
1781 Apr 08	15:55:08	17	2	-2706	99	N	-a	1.3602	0.3396	-0.6154	151.4	-	-	6S	122E
1781 May 08	00:01:07	17	2	-2705	137	N	a-	-1.1949	0.6458	-0.3151	205.6	-	-	18S	2W
1781 Nov 01	05:56:09	17	2	-2699	142	N	t-	1.3851	0.3647	-0.7307	183.1	-	-	16N	94W
1782 Mar 29	08:23:07	17	2	-2694	109	P	-a	0.6779	1.5974	0.6307	290.4	159.4	-	3S	124W
1782 Sep 21	14:17:33	17	2	-2688	114	P	-t	-0.8348	1.3498	0.3032	304.2	125.9	-	1S	144E
1783 Mar 18	21:31:30	17	2	-2682	119	T-	pp	-0.0333	2.8053	1.7886	343.4	221.5	101.5	1N	39E
1783 Sep 10	23:33:06	17	2	-2676	124	T-	pp	-0.0569	2.7474	1.7595	333.7	217.9	100.4	5S	6E
1784 Mar 07	03:39:42	17	2	-2670	129	P	t-	-0.7859	1.4535	0.3792	319.5	141.5	-	4N	52W
1784 Aug 30	14:45:57	17	2	-2664	134	P	a-	0.6662	1.6104	0.6602	287.5	161.1	-	8S	138E
1785 Jan 25	09:10:58	17	2	-2659	101	N	-t	1.5218	0.1128	-0.9807	103.3	-	-	20N	134W
1785 Feb 24	03:42:20	17	2	-2658	139	N	t-	-1.4947	0.1648	-0.9330	125.6	-	-	8N	53W
1785 Jul 21	23:45:47	17	2	-2653	106	N	-a	-1.1606	0.7134	-0.2567	218.3	-	-	21S	5E
1785 Aug 20	07:38:37	17	2	-2652	144	N	a-	1.3843	0.2954	-0.6597	142.9	-	-	11S	114W
1786 Jan 14	12:55:56	17	2	-2647	111	P	-h	0.7838	1.4421	0.3978	304.3	139.2	-	22N	169E
1786 Jul 11	10:47:19	17	2	-2641	116	T	-t	-0.4324	2.0762	1.0531	339.4	205.2	36.3	22S	160W
1787 Jan 03	23:53:37	16	2	-2635	121	T+	pp	0.0632	2.7375	1.7465	327.8	213.7	98.2	23N	3E
1787 Jun 30	14:39:31	16	2	-2629	126	T	t-	0.3441	2.2592	1.1947	363.6	220.8	68.6	23S	141E
1787 Dec 24	15:08:29	16	1	-2623	131	P	a-	-0.6011	1.7404	0.7696	294.6	170.1	-	23N	133E
1788 Jun 18	15:15:24	16	1	-2617	136	N	t-	1.0986	0.8734	-0.1883	265.9	-	-	22S	131E
1788 Nov 13	17:42:35	16	1	-2612	103	N	-a	1.4690	0.1726	-0.8471	116.9	-	-	20N	90E
1788 Dec 13	06:04:27	16	1	-2611	141	N	a-	-1.2899	0.4894	-0.5069	185.0	-	-	22N	92W
1789 May 09	09:28:39	16	1	-2606	108	P	-h	-0.8800	1.2401	0.2465	278.8	109.6	-	18S	143W
1789 Nov 03	00:17:05	16	1	-2600	113	P	-h	0.8243	1.3824	0.3094	312.8	128.7	-	16N	8W
1790 Apr 28	23:53:38	16	1	-2594	118	T-	pp	-0.1156	2.6230	1.6685	319.5	211.1	96.6	15S	1E
1790 Oct 23	00:40:41	16	1	-2588	123	T+	pp	0.1296	2.6678	1.5734	376.8	233.6	100.9	12N	14W
1791 Apr 18	16:41:28	16	1	-2582	128	P	a-	0.6008	1.7331	0.7776	294.8	171.8	-	10S	110E
1791 Oct 12	01:23:20	16	1	-2576	133	P	t-	-0.5802	1.8258	0.7614	339.5	187.4	-	7N	24W
1792 Mar 08	19:02:21	16	1	-2571	100	N	-a	-1.3849	0.3352	-0.7010	164.6	-	-	3N	77E
1792 Apr 07	07:12:02	16	1	-2570	138	N	a-	1.3603	0.3612	-0.6370	164.2	-	-	6S	107W
1792 Aug 31	22:42:41	16	1	-2565	105	N	-a	1.3817	0.3087	-0.6633	148.6	-	-	7S	19E
1792 Sep 30	08:43:06	16	1	-2564	143	N	a-	-1.2636	0.5423	-0.4634	199.1	-	-	2N	133W
1793 Feb 25	22:59:33	16	1	-2559	110	P	-t	-0.7219	1.5777	0.4899	332.6	159.7	-	8N	18E
1793 Aug 21	14:55:22	15	1	-2553	115	P	-a	0.6392	1.6576	0.7120	288.9	165.5	-	11S	137E

1794 Feb 14	22:21:16	15	1	-2547	120	T-	pp	-0.0300	2.8514	1.7553	376.6	234.5	104.8	13N	28E
1794 Aug 11	07:29:21	15	1	-2541	125	T-	pp	-0.0874	2.6790	1.7157	325.1	214.3	98.8	15S	111W
1795 Feb 04	00:39:45	15	1	-2535	130	P	a-	0.6610	1.6732	0.6175	324.2	169.7	-	17N	6W
1795 Jul 31	19:50:34	15	1	-2529	135	P	t-	-0.8791	1.2513	0.2386	287.4	110.4	-	19S	64E
1795 Dec 25	22:37:34	15	1	-2524	102	N	-a	-1.4110	0.2592	-0.7214	134.9	-	-	22N	21E
1796 Jan 24	10:09:21	15	1	-2523	140	N	a-	1.3036	0.4664	-0.5341	182.1	-	-	20N	149W
1796 Jun 20	10:28:08	15	1	-2518	107	N	-t	1.1355	0.8095	-0.2597	260.0	-	-	22S	157W
1796 Dec 14	14:16:42	15	1	-2512	112	P	-a	-0.7519	1.4649	0.4915	280.6	142.6	-	23N	145E
1797 Jun 09	11:30:23	14	1	-2506	117	T	-t	0.3666	2.2120	1.1593	356.5	216.5	62.2	23S	173W
1797 Dec 04	04:17:57	14	1	-2500	122	T-	-p	-0.0850	2.7070	1.6971	336.1	217.1	98.6	22N	67W
1798 May 29	18:07:26	14	1	-2494	127	T	a-	-0.4130	2.1014	1.0990	330.8	203.4	48.0	22S	87E
1798 Nov 23	12:25:23	14	1	-2488	132	P	t-	0.6422	1.7128	0.6472	330.5	174.5	-	21N	170E
1799 Apr 19	23:52:15	14	1	-2483	99	N	-a	1.4072	0.2515	-0.7001	131.2	-	-	10S	2E
1799 May 19	07:35:59	14	1	-2482	137	N	a-	-1.1294	0.7639	-0.1929	220.4	-	-	21S	115W
1799 Nov 12	13:38:18	13	1	-2476	142	N	t-	1.3618	0.4091	-0.6897	193.4	-	-	19N	151E
1800 Apr 09	16:26:01	13	1	-2471	109	P	-a	0.7221	1.5157	0.5500	286.1	151.1	-	7S	114E
1800 Oct 02	21:46:41	13	1	-2465	114	P	-t	-0.8798	1.2673	0.2206	296.6	108.4	-	3N	31E

19TH CENTURY CE

In the 19th century CE the total number of lunar eclipses was 249 lunar eclipses: 90 penumbral lunar eclipses, 97 partial lunar eclipses, 62 total lunar eclipses (51 central total lunar eclipses, 11 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
	ECLIPSE														
1801 Mar 30	05:24:05	13	1	-2459	119	T+	pp	0.0052	2.8569	1.8400	344.6	222.3	102.1	4S	80W
1801 Sep 22	07:18:55	13	1	-2453	124	T-	pp	-0.1074	2.6548	1.6670	332.2	216.4	98.2	1S	111W
1802 Mar 19	11:15:28	13	1	-2447	129	P	t-	-0.7518	1.5156	0.4423	324.5	151.7	-	0N	167W

1802 Sep 11	22:36:46	13	1	-2441	134	P	a-	0.6106	1.7134	0.7615	292.6	170.0	-	4S	20E
1803 Feb 06	17:10:44	12	1	-2436	101	N	-t	1.5322	0.0919	-0.9979	93.2	-	-	17N	107E
1803 Mar 08	11:17:37	12	1	-2435	139	N	t-	-1.4654	0.2169	-0.8775	143.3	-	-	4N	167W
1803 Aug 03	07:05:10	12	1	-2430	106	N	-a	-1.2349	0.5791	-0.3952	200.1	-	-	19S	104W
1803 Sep 01	15:19:08	12	1	-2429	144	N	a-	1.3282	0.4004	-0.5588	165.2	-	-	7S	130E
1804 Jan 26	21:21:21	12	1	-2424	111	P	-h	0.7882	1.4320	0.3918	302.4	137.9	-	20N	43E
1804 Jul 22	17:38:00	12	1	-2418	116	P	-t	-0.5141	1.9284	0.9012	335.1	195.8	-	21S	97E
1805 Jan 15	08:40:57	12	1	-2412	121	T+	pp	0.0663	2.7305	1.7420	326.8	213.3	98.1	21N	128W
1805 Jul 11	21:04:52	12	1	-2406	126	T+	pp	0.2561	2.4214	1.3553	368.3	227.6	87.6	22S	45E
1806 Jan 05	00:02:03	12	1	-2400	131	P	a-	-0.5982	1.7459	0.7748	295.0	170.6	-	22N	1E
1806 Jun 30	21:44:38	12	1	-2394	136	Nx	t-	1.0116	1.0319	-0.0276	283.6	-	-	22S	35E
1806 Nov 26	02:05:37	12	1	-2389	103	N	-a	1.4854	0.1451	-0.8797	107.9	-	-	22N	35W
1806 Dec 25	14:48:03	12	1	-2388	141	N	a-	-1.2892	0.4923	-0.5071	186.1	-	-	22N	138E
1807 May 21	16:49:32	12	1	-2383	108	P	-h	-0.9424	1.1229	0.1346	267.5	82.0	-	21S	107E
1807 Nov 15	08:09:58	12	1	-2377	113	P	-h	0.8473	1.3426	0.2646	310.8	120.1	-	19N	126W
1808 May 10	07:38:16	12	1	-2371	118	T-	-p	-0.1736	2.5145	1.5637	317.6	209.3	92.8	18S	116W
1808 Nov 03	08:13:38	12	1	-2365	123	T+	pp	0.1607	2.6122	1.5148	376.4	232.4	98.1	15N	127W
1809 Apr 30	00:33:02	12	1	-2359	128	P	a-	0.5490	1.8275	0.8732	299.4	179.4	-	14S	9W
1809 Oct 23	09:02:46	12	1	-2353	133	P	t-	-0.5441	1.8924	0.8275	341.9	192.6	-	11N	139W
1810 Mar 21	02:54:47	12	1	-2348	100	N	-a	-1.4210	0.2690	-0.7673	148.8	-	-	1S	42W
1810 Apr 19	14:54:07	12	1	-2347	138	N	a-	1.3166	0.4414	-0.5570	180.7	-	-	10S	137E
1810 Sep 13	06:27:09	12	1	-2342	105	N	-a	1.4299	0.2203	-0.7519	126.2	-	-	3S	98W
1810 Oct 12	16:39:21	12	1	-2341	143	N	a-	-1.2230	0.6167	-0.3889	210.1	-	-	6N	107E
1811 Mar 10	06:37:39	12	1	-2336	110	P	-t	-0.7527	1.5205	0.4341	329.1	151.9	-	4N	97W
1811 Sep 02	22:41:51	12	1	-2330	115	P	-a	0.6972	1.5523	0.6045	283.4	155.1	-	7S	19E
1812 Feb 27	06:04:51	12	1	-2324	120	T-	pp	-0.0538	2.8057	1.7136	375.6	234.1	104.3	9N	88W
1812 Aug 22	15:01:21	12	1	-2318	125	T-	pp	-0.0229	2.7997	1.8320	326.8	215.4	100.4	12S	135E
1813 Feb 15	08:50:46	12	1	-2312	130	P	a-	0.6454	1.6993	0.6488	324.3	172.6	-	13N	129W
1813 Aug 12	02:52:49	12	1	-2306	135	P	t-	-0.8086	1.3833	0.3655	299.1	134.6	-	16S	42W
1814 Jan 06	07:28:19	12	1	-2301	102	N	-a	-1.4119	0.2568	-0.7223	134.1	-	-	21N	111W
1814 Feb 04	18:47:01	12	1	-2300	140	N	a-	1.2927	0.4843	-0.5122	184.6	-	-	17N	82E
1814 Jul 02	16:51:30	12	1	-2295	107	N	-t	1.2225	0.6498	-0.4195	236.8	-	-	22S	108E
1814 Dec 26	23:08:27	12	1	-2289	112	P	-a	-0.7564	1.4573	0.4826	280.4	141.6	-	23N	13E
1815 Jun 21	18:06:32	12	1	-2283	117	T	-t	0.4498	2.0575	1.0082	350.0	207.4	14.8	23S	89E
1815 Dec 16	12:55:05	12	1	-2277	122	T-	-p	-0.0906	2.6988	1.6850	337.3	217.4	98.4	23N	165E
1816 Jun 10	01:14:25	12	1	-2271	127	T	a-	-0.3369	2.2387	1.2410	333.3	209.5	71.3	23S	19W
1816 Dec 04	20:35:14	12	1	-2265	132	P	t-	0.6320	1.7338	0.6636	332.9	176.7	-	23N	49E
1817 May 01	07:44:03	12	1	-2260	99	N	-a	1.4587	0.1555	-0.7929	104.0	-	-	14S	116W
1817 May 30	15:07:29	12	1	-2259	137	N	a-	-1.0608	0.8881	-0.0652	233.9	-	-	23S	132E
1817 Nov 23	21:26:56	12	1	-2253	142	N	t-	1.3436	0.4441	-0.6576	201.2	-	-	22N	35E

1818 Apr 21	00:20:29	12	1	-2248	109	P	-a	0.7729	1.4222	0.4573	280.8	140.0	-	11S	5W
1818 Oct 14	05:25:27	12	1	-2242	114	P	-t	-0.9175	1.1981	0.1512	289.8	90.4	-	7N	84W
1819 Apr 10	13:07:52	12	1	-2236	119	T+	pp	0.0502	2.7745	1.7574	345.5	222.7	101.8	8S	163E
1819 Oct 03	15:13:28	12	1	-2230	124	T-	pp	-0.1510	2.5747	1.5868	330.4	214.6	95.3	4N	129E
1820 Mar 29	18:42:42	12	1	-2224	129	P	t-	-0.7112	1.5895	0.5171	330.1	162.4	-	4S	80E
1820 Sep 22	06:35:09	11	1	-2218	134	P	a-	0.5612	1.8049	0.8511	296.8	176.8	-	0N	101W
1821 Feb 17	01:05:20	11	1	-2213	101	N	-t	1.5470	0.0627	-1.0228	76.9	-	-	13N	12W
1821 Mar 18	18:44:56	11	1	-2212	139	N	t-	-1.4293	0.2812	-0.8094	161.9	-	-	0S	80E
1821 Aug 13	14:26:44	11	1	-2207	106	N	-a	-1.3067	0.4499	-0.5291	179.3	-	-	16S	145E
1821 Sep 11	23:04:54	11	1	-2206	144	N	a-	1.2767	0.4972	-0.4665	182.9	-	-	3S	12E
1822 Feb 06	05:43:26	11	1	-2201	111	P	-a	0.7961	1.4151	0.3797	300.0	135.6	-	16N	82W
1822 Aug 03	00:30:07	11	1	-2195	116	P	-t	-0.5938	1.7846	0.7526	329.9	184.2	-	18S	6W
1823 Jan 26	17:24:53	11	1	-2189	121	T+	pp	0.0729	2.7169	1.7315	325.8	212.9	97.8	19N	102E
1823 Jul 23	03:32:23	10	1	-2183	126	T+	pp	0.1699	2.5805	1.5124	371.7	232.3	98.6	20S	52W
1824 Jan 16	08:54:08	10	1	-2177	131	P	a-	-0.5938	1.7538	0.7829	295.4	171.3	-	21N	131W
1824 Jul 11	04:14:59	10	1	-2171	136	P	t-	0.9245	1.1907	0.1330	298.8	87.6	-	21S	63W
1824 Dec 06	10:32:40	10	1	-2166	103	N	-a	1.4981	0.1241	-0.9053	100.3	-	-	24N	160W
1825 Jan 04	23:31:52	10	1	-2165	141	N	a-	-1.2890	0.4937	-0.5081	186.9	-	-	21N	8E
1825 Jun 01	00:06:18	10	1	-2160	108	P	-h	-1.0090	0.9983	0.0149	254.5	27.6	-	23S	2W
1825 Nov 25	16:09:25	9	1	-2154	113	P	-h	0.8643	1.3138	0.2312	309.5	113.1	-	22N	114E
1826 May 21	15:15:25	9	1	-2148	118	T-	-p	-0.2384	2.3941	1.4465	315.1	206.4	86.5	20S	130E
1826 Nov 14	15:56:14	9	1	-2142	123	T+	pp	0.1840	2.5707	1.4709	376.0	231.2	95.6	18N	117E
1827 May 11	08:16:56	9	1	-2136	128	P	a-	0.4910	1.9335	0.9801	304.1	186.8	-	17S	125W
1827 Nov 03	16:51:55	8	1	-2130	133	P	h-	-0.5151	1.9456	0.8805	343.4	196.3	-	15N	103E
1828 Mar 31	10:38:44	8	1	-2125	100	N	-h	-1.4631	0.1919	-0.8445	126.9	-	-	6S	159W
1828 Apr 29	22:28:39	8	1	-2124	138	N	h-	1.2675	0.5318	-0.4671	197.3	-	-	13S	22E
1828 Sep 23	14:19:41	8	1	-2119	105	N	-a	1.4724	0.1425	-0.8300	102.0	-	-	2N	143E
1828 Oct 23	00:44:42	8	1	-2118	143	N	a-	-1.1889	0.6793	-0.3263	218.5	-	-	10N	15W
1829 Mar 20	14:08:13	8	1	-2113	110	P	-t	-0.7892	1.4527	0.3681	324.5	141.5	-	1S	150E
1829 Sep 13	06:33:27	8	1	-2107	115	P	-a	0.7510	1.4550	0.5047	277.8	143.9	-	3S	100W
1830 Mar 09	13:42:57	7	1	-2101	120	T-	pp	-0.0824	2.7510	1.6633	374.3	233.5	103.3	4N	157E
1830 Sep 02	22:37:55	7	1	-2095	125	T+	pp	0.0371	2.7760	1.8034	328.0	215.7	100.2	8S	20E
1831 Feb 26	16:56:21	7	1	-2089	130	P	a-	0.6246	1.7346	0.6897	324.8	176.2	-	9N	109E
1831 Aug 23	09:59:56	7	1	-2083	135	P	t-	-0.7429	1.5067	0.4833	309.2	152.5	-	12S	149W
1832 Jan 17	16:18:14	7	1	-2078	102	N	-a	-1.4136	0.2527	-0.7244	132.9	-	-	19N	118E
1832 Feb 16	03:20:41	7	1	-2077	140	N	a-	1.2784	0.5083	-0.4838	188.1	-	-	14N	46W
1832 Jul 12	23:15:58	6	1	-2072	107	N	-t	1.3082	0.4929	-0.5769	209.4	-	-	21S	12E
1832 Aug 11	14:14:53	6	1	-2071	145	Nb	t-	-1.5397	0.0662	-0.9999	79.2	-	-	17S	148E
1833 Jan 06	07:59:45	6	1	-2066	112	P	-a	-0.7612	1.4492	0.4734	280.3	140.6	-	22N	118W
1833 Jul 02	00:43:22	6	1	-2060	117	P	-t	0.5329	1.9036	0.8572	342.4	196.2	-	23S	10W

1833	Dec 26	21:32:54	6	1	-2054	122	T-	-p	-0.0951	2.6920	1.6749	338.5	217.8	98.3	23N	37E
1834	Jun 21	08:19:45	6	1	-2048	127	T-	p-	-0.2584	2.3806	1.3871	335.1	214.2	85.6	24S	125W
1834	Dec 16	04:48:06	6	1	-2042	132	P	t-	0.6249	1.7487	0.6746	334.9	178.2	-	24N	73W
1835	May 12	15:28:44	6	1	-2037	99	Ne	-a	1.5160	0.0491	-0.8968	58.9	-	-	17S	127E
1835	Jun 10	22:35:53	6	1	-2036	137	P	a-	-0.9889	1.0184	0.0681	246.5	56.9	-	24S	21E
1835	Dec 05	05:20:18	6	1	-2030	142	N	t-	1.3291	0.4717	-0.6322	207.0	-	-	23N	83W
1836	May 01	08:06:48	5	1	-2025	109	P	-a	0.8299	1.3174	0.3528	274.1	125.2	-	14S	122W
1836	Oct 24	13:14:43	5	1	-2019	114	P	-t	-0.9473	1.1436	0.0966	283.9	72.6	-	11N	158E
1837	Apr 20	20:40:45	5	1	-2013	119	T+	pp	0.1033	2.6772	1.6598	346.1	222.6	100.2	12S	50E
1837	Oct 13	23:17:06	5	1	-2007	124	T-	-p	-0.1878	2.5074	1.5192	328.7	212.7	92.0	8N	7E
1838	Apr 10	01:58:48	5	1	-2001	129	P	t-	-0.6622	1.6788	0.6076	336.1	173.9	-	8S	30W
1838	Oct 03	14:41:27	5	1	-1995	134	P	a-	0.5183	1.8849	0.9288	300.1	182.1	-	4N	137E
1839	Feb 28	08:53:42	5	1	-1990	101	Ne	-t	1.5671	0.0234	-1.0574	47.0	-	-	9N	130W
1839	Mar 30	02:03:03	5	1	-1989	139	N	t-	-1.3854	0.3596	-0.7268	181.5	-	-	5S	30W
1839	Aug 24	21:52:13	5	1	-1984	106	N	-a	-1.3743	0.3283	-0.6558	155.6	-	-	12S	33E
1839	Sep 23	06:57:38	5	1	-1983	144	N	a-	1.2312	0.5831	-0.3854	197.1	-	-	1N	107W
1840	Feb 17	14:02:35	5	1	-1978	111	P	-a	0.8074	1.3918	0.3616	297.1	132.3	-	13N	153E
1840	Aug 13	07:23:08	5	1	-1972	116	P	-t	-0.6716	1.6443	0.6074	323.6	170.1	-	15S	109W
1841	Feb 06	02:07:13	5	1	-1966	121	T+	pp	0.0812	2.6999	1.7178	324.8	212.5	97.5	16N	28W
1841	Aug 02	10:00:51	5	1	-1960	126	T+	pp	0.0847	2.7381	1.6678	373.9	235.1	104.6	18S	149W
1842	Jan 26	17:44:27	5	1	-1954	131	P	a-	-0.5884	1.7634	0.7930	296.0	172.2	-	18N	97E
1842	Jul 22	10:47:38	6	1	-1948	136	P	t-	0.8384	1.3480	0.2917	311.7	126.5	-	20S	161W
1842	Dec 17	19:02:29	6	1	-1943	103	N	-a	1.5079	0.1082	-0.9253	94.2	-	-	25N	74E
1843	Jan 16	08:14:23	6	1	-1942	141	N	a-	-1.2886	0.4956	-0.5083	187.7	-	-	20N	121W
1843	Jun 12	07:22:16	6	1	-1937	108	N	-h	-1.0768	0.8717	-0.1073	240.0	-	-	24S	111W
1843	Jul 11	16:49:52	6	1	-1936	146	Nb	h-	1.5469	0.0226	-0.9830	43.3	-	-	21S	108E
1843	Dec 07	00:11:30	6	1	-1931	113	P	-t	0.8785	1.2897	0.2031	308.4	106.6	-	23N	5W
1844	May 31	22:50:43	6	1	-1925	118	T	-p	-0.3050	2.2706	1.3255	312.1	202.5	77.1	22S	17E
1844	Nov 24	23:44:52	6	1	-1919	123	T+	pp	0.2026	2.5375	1.4358	375.5	230.2	93.3	21N	1E
1845	May 21	15:54:30	6	1	-1913	128	T	a-	0.4281	2.0488	1.0957	308.7	193.7	45.3	20S	121E
1845	Nov 14	00:49:42	6	1	-1907	133	P	h-	-0.4925	1.9871	0.9221	344.3	198.9	-	18N	16W
1846	Apr 11	18:11:34	6	1	-1902	100	N	-h	-1.5132	0.0999	-0.9365	92.6	-	-	10S	87E
1846	May 11	05:53:43	6	1	-1901	138	N	h-	1.2112	0.6355	-0.3643	214.2	-	-	17S	89W
1846	Oct 04	22:21:37	6	1	-1896	105	N	-a	1.5078	0.0780	-0.8952	75.7	-	-	6N	21E
1846	Nov 03	08:59:23	6	1	-1895	143	N	a-	-1.1619	0.7287	-0.2766	224.6	-	-	14N	139W
1847	Mar 31	21:27:02	6	1	-1890	110	P	-t	-0.8346	1.3684	0.2857	318.3	126.4	-	5S	39E
1847	Sep 24	14:33:44	7	1	-1884	115	P	-a	0.7974	1.3714	0.4181	272.6	132.8	-	1N	139E
1848	Mar 19	21:12:12	7	1	-1878	120	T-	pp	-0.1185	2.6823	1.5993	372.6	232.4	101.4	0N	44E
1848	Sep 13	06:19:24	7	1	-1872	125	T+	pp	0.0922	2.6776	1.6998	328.9	215.4	98.6	4S	96W
1849	Mar 09	00:55:48	7	1	-1866	130	P	a-	0.5980	1.7804	0.7414	325.7	180.6	-	5N	11W

1849 Sep 02	17:10:17	7	1	-1860	135	P	t-	-0.6807	1.6238	0.5945	318.0	166.6	-	8S	103E
1850 Jan 28	01:06:05	7	1	-1855	102	N	-a	-1.4176	0.2443	-0.7305	130.5	-	-	17N	13W
1850 Feb 26	11:48:12	7	1	-1854	140	N	a-	1.2587	0.5420	-0.4453	192.9	-	-	10N	173W
1850 Jul 24	05:40:15	7	1	-1849	107	N	-t	1.3933	0.3371	-0.7336	175.8	-	-	19S	84W
1850 Aug 22	20:55:01	7	1	-1848	145	N	t-	-1.4680	0.1997	-0.8703	136.2	-	-	13S	47E
1851 Jan 17	16:50:46	7	1	-1843	112	P	-a	-0.7660	1.4406	0.4642	280.1	139.6	-	20N	110E
1851 Jul 13	07:21:41	7	1	-1837	117	P	-t	0.6155	1.7508	0.7069	333.7	182.3	-	21S	109W
1852 Jan 07	06:10:43	7	1	-1831	122	T-	-p	-0.0991	2.6863	1.6663	339.7	218.3	98.3	22N	91W
1852 Jul 01	15:26:12	7	1	-1825	127	T-	p-	-0.1799	2.5227	1.5330	336.0	217.4	94.6	23S	129E
1852 Dec 26	13:03:06	7	1	-1819	132	P	t-	0.6203	1.7588	0.6815	336.6	179.4	-	24N	164E
1853 Jun 21	06:01:48	7	1	-1813	137	P	a-	-0.9146	1.1535	0.2056	257.9	96.8	-	24S	90W
1853 Dec 15	13:18:42	7	1	-1807	142	N	t-	1.3187	0.4917	-0.6138	211.0	-	-	24N	159E
1854 May 12	15:46:09	7	1	-1802	109	P	-a	0.8919	1.2035	0.2390	266.0	105.0	-	17S	123E
1854 Nov 04	21:12:49	7	1	-1796	114	P	-h	-0.9707	1.1005	0.0538	279.0	54.3	-	15N	38E
1855 May 02	04:05:23	7	1	-1790	119	T+	-p	0.1625	2.5690	1.5509	346.2	221.5	96.5	15S	62W
1855 Oct 25	07:29:40	7	0	-1784	124	T-	-p	-0.2177	2.4528	1.4643	327.0	210.8	88.7	12N	116W
1856 Apr 20	09:06:46	7	0	-1778	129	P	t-	-0.6068	1.7799	0.7098	342.4	185.1	-	12S	137W
1856 Oct 13	22:54:33	7	0	-1772	134	P	a-	0.4810	1.9545	0.9960	302.8	186.2	-	9N	13E
1857 Apr 09	09:13:17	7	0	-1766	139	N	t-	-1.3347	0.4504	-0.6317	201.0	-	-	9S	138W
1857 Sep 04	05:22:16	7	0	-1761	106	N	-a	-1.4376	0.2150	-0.7746	127.8	-	-	8S	80W
1857 Oct 03	14:56:56	7	0	-1760	144	N	a-	1.1914	0.6586	-0.3149	208.5	-	-	5N	132E
1858 Feb 27	22:14:20	7	0	-1755	111	P	-a	0.8253	1.3561	0.3316	293.1	126.9	-	9N	30E
1858 Aug 24	14:20:47	7	0	-1749	116	P	-t	-0.7446	1.5131	0.4708	316.8	153.5	-	12S	146E
1859 Feb 17	10:43:28	7	0	-1743	121	T+	pp	0.0950	2.6727	1.6944	323.7	211.9	96.9	12N	157W
1859 Aug 13	16:34:25	7	0	-1737	126	T+	pp	0.0038	2.8877	1.8148	375.0	236.0	106.5	15S	113E
1860 Feb 07	02:29:45	8	0	-1731	131	P	a-	-0.5791	1.7801	0.8106	296.9	173.7	-	15N	34W
1860 Aug 01	17:25:02	8	0	-1725	136	P	t-	0.7551	1.5003	0.4450	322.3	152.3	-	17S	100E
1860 Dec 28	03:33:55	8	0	-1720	103	N	-a	1.5160	0.0951	-0.9419	88.7	-	-	25N	53W
1861 Jan 26	16:54:01	8	0	-1719	141	N	a-	-1.2865	0.5002	-0.5051	189.1	-	-	17N	109E
1861 Jun 22	14:35:15	8	0	-1714	108	N	-a	-1.1477	0.7397	-0.2355	223.3	-	-	25S	142E
1861 Jul 21	23:50:37	8	0	-1713	146	N	a-	1.4660	0.1696	-0.8333	116.7	-	-	19S	3E
1861 Dec 17	08:18:43	8	0	-1708	113	P	-t	0.8881	1.2738	0.1840	307.9	102.0	-	24N	125W
1862 Jun 12	06:21:03	8	0	-1702	118	T	-p	-0.3763	2.1387	1.1957	308.3	197.2	62.4	24S	95W
1862 Dec 06	07:40:21	7	0	-1696	123	T+	pp	0.2157	2.5142	1.4113	375.1	229.4	91.5	23N	117W
1863 Jun 01	23:26:14	7	0	-1690	128	T	p-	0.3606	2.1729	1.2195	313.0	200.0	66.1	22S	8E
1863 Nov 25	08:56:11	7	0	-1684	133	P	a-	-0.4761	2.0170	0.9525	344.5	200.5	-	20N	137W
1864 May 21	13:12:02	6	0	-1678	138	N	h-	1.1503	0.7480	-0.2531	230.7	-	-	19S	161E
1864 Oct 15	06:30:45	6	0	-1673	105	N	-a	1.5380	0.0230	-0.9511	41.2	-	-	10N	102W
1864 Nov 13	17:21:25	6	0	-1672	143	N	a-	-1.1403	0.7683	-0.2367	229.0	-	-	17N	96E
1865 Apr 11	04:38:10	6	0	-1667	110	P	-t	-0.8857	1.2736	0.1930	310.5	105.4	-	9S	69W

1865 Oct 04	22:40:00	5	0	-1661	115	P	-a	0.8386	1.2973	0.3408	267.7	121.3	-	5N	17E
1866 Mar 31	04:33:35	5	0	-1655	120	T-	pp	-0.1614	2.6011	1.5232	370.5	230.7	98.2	4S	67W
1866 Sep 24	14:07:14	4	0	-1649	125	T+	-p	0.1412	2.5904	1.6071	329.5	214.6	96.0	1N	146E
1867 Mar 20	08:49:01	4	0	-1643	130	P	a-	0.5657	1.8366	0.8038	326.9	185.5	-	1N	130W
1867 Sep 14	00:26:27	3	0	-1637	135	P	t-	-0.6240	1.7309	0.6956	325.6	177.8	-	4S	7W
1868 Feb 08	09:49:39	3	0	-1632	102	N	-a	-1.4252	0.2288	-0.7433	126.3	-	-	14N	144W
1868 Mar 08	20:09:49	3	0	-1631	140	N	a-	1.2340	0.5850	-0.3974	198.9	-	-	6N	61E
1868 Aug 03	12:09:12	2	0	-1626	107	N	-t	1.4741	0.1895	-0.8824	133.6	-	-	16S	179E
1868 Sep 02	03:41:28	2	0	-1625	145	N	t-	-1.4013	0.3242	-0.7498	172.0	-	-	9S	55W
1869 Jan 28	01:38:27	2	0	-1620	112	P	-a	-0.7733	1.4273	0.4507	279.6	138.0	-	17N	21W
1869 Jul 23	14:02:45	1	0	-1614	117	P	-t	0.6962	1.6017	0.5600	323.9	165.8	-	19S	151E
1870 Jan 17	14:46:33	1	0	-1608	122	T-	-p	-0.1037	2.6789	1.6566	340.8	218.7	98.2	21N	141E
1870 Jul 12	22:34:23	0	0	-1602	127	T-	pp	-0.1023	2.6636	1.6769	336.1	219.2	99.7	22S	23E
1871 Jan 06	21:16:40	-0	0	-1596	132	P	t-	0.6154	1.7690	0.6893	338.1	180.6	-	23N	42E
1871 Jul 02	13:27:48	-1	0	-1590	137	P	a-	-0.8401	1.2893	0.3432	268.0	122.4	-	24S	159E
1871 Dec 26	21:19:32	-1	0	-1584	142	N	t-	1.3106	0.5068	-0.5995	214.0	-	-	25N	40E
1872 May 22	23:18:24	-1	0	-1579	109	P	-a	0.9593	1.0802	0.1152	256.2	74.4	-	20S	10E
1872 Nov 15	05:19:37	-2	0	-1573	114	P	-h	-0.9876	1.0692	0.0230	275.1	35.5	-	18N	83W
1873 May 12	11:20:26	-2	0	-1567	119	T+	-p	0.2284	2.4485	1.4295	345.6	219.3	89.9	18S	171W
1873 Nov 04	15:51:03	-2	0	-1561	124	T-	-p	-0.2408	2.4104	1.4217	325.5	209.1	85.7	15N	118E
1874 May 01	16:03:17	-3	0	-1555	129	P	t-	-0.5426	1.8971	0.8282	348.8	196.2	-	16S	118E
1874 Oct 25	07:16:22	-3	0	-1549	134	T	a-	0.4510	2.0108	1.0497	304.9	189.2	32.7	12N	113W
1875 Apr 20	16:15:21	-3	0	-1543	139	N	t-	-1.2770	0.5541	-0.5237	220.3	-	-	13S	115E
1875 Sep 15	12:57:29	-4	0	-1538	106	N	-a	-1.4955	0.1117	-0.8837	93.3	-	-	4S	165E
1875 Oct 14	23:02:54	-4	0	-1537	144	N	a-	1.1578	0.7229	-0.2557	217.8	-	-	9N	10E
1876 Mar 10	06:21:31	-4	0	-1532	111	P	-a	0.8475	1.3124	0.2938	288.5	119.7	-	5N	92W
1876 Sep 03	21:22:33	-4	0	-1526	116	P	-t	-0.8130	1.3904	0.3425	309.3	133.9	-	8S	39E
1877 Feb 27	19:15:37	-4	0	-1520	121	T+	-p	0.1125	2.6386	1.6644	322.6	211.4	96.2	8N	74E
1877 Aug 23	23:11:35	-4	0	-1514	126	T-	pp	-0.0738	2.7606	1.6850	375.1	235.4	104.9	11S	13E
1878 Feb 17	11:11:05	-5	0	-1508	131	P	a-	-0.5667	1.8021	0.8339	298.0	175.6	-	11N	164W
1878 Aug 13	00:08:22	-5	0	-1502	136	P	t-	0.6757	1.6458	0.5912	330.9	171.1	-	14S	1W
1879 Jan 08	12:04:11	-5	0	-1497	103	N	-a	1.5243	0.0812	-0.9587	82.4	-	-	24N	179W
1879 Feb 07	01:28:33	-5	0	-1496	141	N	a-	-1.2810	0.5109	-0.4955	191.4	-	-	14N	19W
1879 Jul 03	21:50:28	-5	0	-1491	108	N	-a	-1.2173	0.6103	-0.3617	204.7	-	-	24S	34E
1879 Aug 02	06:57:43	-5	0	-1490	146	N	a-	1.3889	0.3098	-0.6908	155.1	-	-	17S	103W
1879 Dec 28	16:26:22	-5	0	-1485	113	P	-t	0.8970	1.2587	0.1664	307.3	97.4	-	24N	114E
1880 Jun 22	13:50:27	-5	0	-1479	118	T	-a	-0.4484	2.0057	1.0641	303.8	190.6	37.2	24S	153E
1880 Dec 16	15:39:03	-5	0	-1473	123	T+	pp	0.2263	2.4949	1.3915	374.5	228.6	89.9	24N	124E
1881 Jun 12	06:53:44	-5	0	-1467	128	T	p-	0.2899	2.3030	1.3488	316.9	205.3	79.9	23S	104W
1881 Dec 05	17:08:33	-5	0	-1461	133	P	a-	-0.4640	2.0386	0.9751	344.3	201.5	-	22N	101E

1882 Jun 01	20:21:58	-5	0	-1455	138	N	t-	1.0833	0.8717	-0.1311	246.8	-	-	21S	54E
1882 Nov 25	01:51:01	-6	0	-1449	143	N	a-	-1.1243	0.7972	-0.2071	231.9	-	-	20N	31W
1883 Apr 22	11:38:29	-6	0	-1444	110	P	-t	-0.9449	1.1640	0.0854	300.6	71.3	-	13S	175W
1883 Oct 16	06:54:15	-6	0	-1438	115	P	-a	0.8732	1.2355	0.2757	263.4	110.1	-	10N	107W
1884 Apr 10	11:46:34	-6	0	-1432	120	T-	pp	-0.2116	2.5065	1.4337	367.8	228.2	92.9	8S	176W
1884 Oct 04	22:01:55	-6	0	-1426	125	T+	-p	0.1839	2.5151	1.5260	330.0	213.5	92.6	5N	27E
1885 Mar 30	16:34:07	-6	0	-1420	130	P	a-	0.5258	1.9066	0.8802	328.5	191.0	-	4S	113E
1885 Sep 24	07:48:12	-6	0	-1414	135	P	t-	-0.5726	1.8284	0.7867	332.1	186.7	-	0N	119W
1886 Feb 18	18:29:00	-6	0	-1409	102	N	-a	-1.4366	0.2064	-0.7626	120.0	-	-	10N	86E
1886 Mar 20	04:24:17	-6	0	-1408	140	N	a-	1.2030	0.6393	-0.3381	206.2	-	-	1N	64W
1886 Aug 14	18:42:03	-6	0	-1403	107	Ne	-t	1.5512	0.0489	-1.0246	68.7	-	-	13S	80E
1886 Sep 13	10:34:43	-6	0	-1402	145	N	t-	-1.3399	0.4390	-0.6392	198.4	-	-	5S	159W
1887 Feb 08	10:22:03	-6	0	-1397	112	P	-a	-0.7837	1.4082	0.4318	278.8	135.6	-	14N	152W
1887 Aug 03	20:48:53	-6	0	-1391	117	P	-t	0.7732	1.4595	0.4194	313.4	146.3	-	17S	49E
1888 Jan 28	23:20:01	-6	0	-1385	122	T-	-p	-0.1095	2.6692	1.6452	341.9	219.1	98.1	18N	13E
1888 Jul 23	05:44:47	-6	0	-1379	127	T-	pp	-0.0256	2.8030	1.8189	335.4	219.6	101.8	20S	85W
1889 Jan 17	05:29:39	-6	0	-1373	132	P	t-	0.6106	1.7787	0.6972	339.6	181.7	-	21N	80W
1889 Jul 12	20:53:52	-6	0	-1367	137	P	a-	-0.7655	1.4257	0.4807	276.9	141.7	-	23S	48E
1890 Jan 06	05:21:26	-6	0	-1361	142	N	t-	1.3030	0.5209	-0.5854	216.7	-	-	24N	79W
1890 Jun 03	06:44:43	-6	0	-1356	109	N	-a	1.0309	0.9492	-0.0168	244.2	-	-	21S	101W
1890 Jul 02	14:08:36	-6	0	-1355	147	N	a-	-1.4872	0.1025	-0.8445	85.3	-	-	25S	149E
1890 Nov 26	13:33:48	-6	0	-1350	114	P	-h	-0.9994	1.0471	0.0018	272.0	9.9	-	20N	154E
1891 May 23	18:29:11	-6	0	-1344	119	T	-a	0.2988	2.3199	1.2996	344.2	215.7	79.1	20S	82E
1891 Nov 16	00:18:46	-6	0	-1338	124	T-	-p	-0.2592	2.3766	1.3880	324.1	207.7	83.1	18N	8W
1892 May 11	22:53:20	-6	0	-1332	129	P	t-	-0.4735	2.0236	0.9555	354.8	206.3	-	19S	16E
1892 Nov 04	15:44:52	-6	0	-1326	134	T	p-	0.4268	2.0565	1.0930	306.6	191.5	44.1	16N	119E
1893 Apr 30	23:08:57	-6	0	-1320	139	N	t-	-1.2120	0.6713	-0.4022	239.2	-	-	16S	12E
1893 Sep 25	20:39:02	-6	0	-1315	106	Ne	-a	-1.5476	0.0192	-0.9822	39.2	-	-	0S	49E
1893 Oct 25	07:16:14	-6	0	-1314	144	N	a-	1.1306	0.7753	-0.2084	225.1	-	-	13N	114W
1894 Mar 21	14:20:28	-6	0	-1309	111	P	-h	0.8771	1.2550	0.2425	282.7	109.3	-	0N	147E
1894 Sep 15	04:31:25	-6	0	-1303	116	P	-t	-0.8749	1.2798	0.2261	301.8	111.0	-	4S	69W
1895 Mar 11	03:39:10	-6	0	-1297	121	T+	-p	0.1376	2.5904	1.6204	321.3	210.5	94.8	4N	52W
1895 Sep 04	05:56:52	-6	0	-1291	126	T-	pp	-0.1449	2.6318	1.5530	374.5	233.5	100.5	7S	89W
1896 Feb 28	19:45:40	-6	0	-1285	131	P	a-	-0.5489	1.8342	0.8673	299.6	178.2	-	7N	66E
1896 Aug 23	06:57:19	-6	0	-1279	136	P	t-	0.5998	1.7849	0.7306	337.9	185.4	-	11S	104W
1897 Jan 18	20:33:09	-6	0	-1274	103	N	-a	1.5333	0.0660	-0.9762	74.6	-	-	22N	55E
1897 Feb 17	09:57:43	-6	0	-1273	141	N	a-	-1.2717	0.5282	-0.4789	194.9	-	-	11N	146W
1897 Jul 14	05:05:20	-5	0	-1268	108	N	-a	-1.2880	0.4793	-0.4901	183.0	-	-	23S	75W
1897 Aug 12	14:08:37	-5	0	-1267	146	N	a-	1.3136	0.4473	-0.5517	183.2	-	-	14S	148E
1898 Jan 08	00:34:46	-5	0	-1262	113	P	-t	0.9046	1.2456	0.1516	306.8	93.3	-	23N	7W

1898 Jul 03	21:17:19	-5	0	-1256	118	P	-a	-0.5228	1.8689	0.9280	298.5	182.3	-	23S	42E
1898 Dec 27	23:41:52	-4	0	-1250	123	T+	pp	0.2339	2.4809	1.3777	373.9	228.0	88.8	24N	5E
1899 Jun 23	14:17:52	-3	0	-1244	128	T+	p-	0.2169	2.4376	1.4820	320.3	209.6	89.5	23S	146E
1899 Dec 17	01:25:45	-3	0	-1238	133	P	a-	-0.4552	2.0540	0.9922	343.8	202.0	-	23N	22W
1900 Jun 13	03:27:37	-2	0	-1232	138	Nx	t-	1.0134	1.0010	-0.0040	262.0	-	-	22S	52W
1900 Dec 06	10:26:29	-1	0	-1226	143	N	a-	-1.1126	0.8183	-0.1851	233.8	-	-	21N	159W

20TH CENTURY CE

In the 20th century CE the total number of lunar eclipses was 229 lunar eclipses: 83 penumbral lunar eclipses, 65 partial lunar eclipses, 81 total lunar eclipses (33 central total lunar eclipses, 48 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
ECLIPSE															
1901 May 03	18:30:37	-1	0	-1221	110	Nx	-t	-1.0101	1.0431	-0.0334	288.3	-	-	17S	81E
1901 Oct 27	15:15:17	-0	0	-1215	115	P	-a	0.9022	1.1841	0.2209	259.7	99.4	-	14N	127E
1902 Apr 22	18:52:40	0	0	-1209	120	T-	pp	-0.2680	2.4003	1.3327	364.4	224.6	84.6	12S	76E
1902 Oct 17	06:03:26	1	0	-1203	125	T+	-p	0.2201	2.4514	1.4566	330.5	212.3	88.8	9N	95W
1903 Apr 12	00:12:59	2	0	-1197	130	P	a-	0.4798	1.9877	0.9677	330.2	196.6	-	8S	3W
1903 Oct 06	15:17:33	2	0	-1191	135	P	t-	-0.5280	1.9133	0.8654	337.6	193.7	-	4N	128E
1904 Mar 02	03:02:32	3	0	-1186	102	N	-a	-1.4529	0.1749	-0.7909	110.6	-	-	6N	43W
1904 Mar 31	12:32:29	3	0	-1185	140	N	a-	1.1666	0.7036	-0.2688	214.2	-	-	3S	173E
1904 Sep 24	17:34:45	3	0	-1179	145	N	t-	-1.2838	0.5440	-0.5384	219.1	-	-	1S	95E
1905 Feb 19	19:00:02	4	0	-1174	112	P	-a	-0.7984	1.3809	0.4050	277.3	132.1	-	11N	78E
1905 Aug 15	03:40:59	5	0	-1168	117	P	-t	0.8457	1.3259	0.2871	302.4	123.1	-	14S	54W
1906 Feb 09	07:46:58	5	0	-1162	122	T-	-p	-0.1199	2.6507	1.6254	342.9	219.5	97.8	15N	113W
1906 Aug 04	13:00:10	6	0	-1156	127	T+	pp	0.0477	2.7615	1.7794	334.1	218.7	101.2	17S	166E
1907 Jan 29	13:37:59	6	0	-1150	132	P	t-	0.6028	1.7936	0.7110	341.2	183.5	-	19N	159E

1907 Jul 25	04:22:27	7	0	-1144	137	P	a-	-0.6925	1.5595	0.6149	284.6	156.8	-	21S	64W
1908 Jan 18	13:21:37	8	0	-1138	142	N	t-	1.2940	0.5370	-0.5685	219.6	-	-	22N	162E
1908 Jun 14	14:06:32	8	0	-1133	109	N	-a	1.1054	0.8135	-0.1541	230.0	-	-	22S	149E
1908 Jul 13	21:33:55	8	0	-1132	147	N	a-	-1.4186	0.2292	-0.7195	126.3	-	-	23S	38E
1908 Dec 07	21:55:10	9	0	-1127	114	Nx	-h	-1.0060	1.0344	-0.0096	269.8	-	-	22N	29E
1909 Jun 04	01:28:51	10	0	-1121	119	T	-h	0.3755	2.1800	1.1580	341.7	210.3	60.4	22S	23W
1909 Nov 27	08:54:41	10	0	-1115	124	T-	-p	-0.2713	2.3544	1.3660	323.0	206.5	81.2	21N	137W
1910 May 24	05:34:15	11	0	-1109	129	T	t-	-0.3976	2.1625	1.0950	360.4	215.4	49.5	21S	85W
1910 Nov 17	00:20:52	12	0	-1103	134	T	p-	0.4089	2.0904	1.1246	307.9	193.0	50.6	19N	9W
1911 May 13	05:56:23	12	0	-1097	139	N	t-	-1.1414	0.7988	-0.2706	257.0	-	-	19S	90W
1911 Nov 06	15:36:44	13	0	-1091	144	N	a-	1.1101	0.8155	-0.1733	230.7	-	-	17N	121E
1912 Apr 01	22:14:16	13	0	-1086	111	P	-h	0.9116	1.1885	0.1821	275.9	95.2	-	4S	28E
1912 Sep 26	11:44:50	14	0	-1080	116	P	-t	-0.9320	1.1779	0.1184	294.0	81.8	-	0N	178W
1913 Mar 22	11:57:49	15	0	-1074	121	T+	-p	0.1671	2.5340	1.5683	319.8	209.4	92.8	0S	178W
1913 Sep 15	12:48:19	15	0	-1068	126	T-	pp	-0.2109	2.5123	1.4304	373.1	230.6	93.5	3S	167E
1914 Mar 12	04:13:08	16	0	-1062	131	P	a-	-0.5254	1.8764	0.9111	301.6	181.5	-	3N	61W
1914 Sep 04	13:54:56	17	0	-1056	136	P	t-	0.5301	1.9127	0.8584	343.2	196.0	-	7S	151E
1915 Jan 31	04:57:45	17	0	-1051	103	N	-a	1.5450	0.0453	-0.9987	62.1	-	-	19N	70W
1915 Mar 01	18:19:31	17	0	-1050	141	N	a-	-1.2573	0.5549	-0.4527	199.8	-	-	7N	88E
1915 Jul 26	12:24:40	18	0	-1045	108	N	-a	-1.3554	0.3546	-0.6128	158.8	-	-	21S	176E
1915 Aug 24	21:27:16	18	0	-1044	146	N	a-	1.2436	0.5750	-0.4225	204.5	-	-	10S	38E
1916 Jan 20	08:39:41	18	0	-1039	113	P	-t	0.9146	1.2278	0.1327	305.8	87.7	-	21N	127W
1916 Jul 15	04:46:08	19	0	-1033	118	P	-a	-0.5957	1.7351	0.7944	292.5	172.5	-	22S	70W
1917 Jan 08	07:44:48	19	0	-1027	123	T+	pp	0.2415	2.4663	1.3642	373.2	227.4	87.6	23N	114W
1917 Jul 04	21:39:04	20	0	-1021	128	T+	pp	0.1419	2.5762	1.6185	323.0	212.8	96.0	23S	36E
1917 Dec 28	09:46:31	20	0	-1015	133	T	a-	-0.4484	2.0652	1.0056	343.1	202.4	12.0	23N	146W
1918 Jun 24	10:28:03	20	0	-1009	138	P	t-	0.9398	1.1375	0.1297	276.4	82.4	-	23S	157W
1918 Dec 17	19:06:00	21	0	-1003	143	N	a-	-1.1036	0.8340	-0.1679	235.0	-	-	22N	73E
1919 May 15	01:14:00	21	0	-998	110	N	-t	-1.0820	0.9103	-0.1644	273.2	-	-	20S	20W
1919 Nov 07	23:44:28	21	0	-992	115	P	-a	0.9246	1.1446	0.1780	256.8	89.8	-	17N	0W
1920 May 03	01:51:08	21	0	-986	120	T	-p	-0.3312	2.2818	1.2194	360.2	219.7	71.5	16S	29W
1920 Oct 27	14:11:38	22	0	-980	125	T+	-p	0.2502	2.3992	1.3987	331.0	211.2	85.0	13N	143E
1921 Apr 22	07:44:39	22	0	-974	130	T	a-	0.4269	2.0815	1.0678	332.0	202.1	40.1	12S	116W
1921 Oct 16	22:53:59	22	0	-968	135	P	t-	-0.4902	1.9858	0.9317	342.2	199.1	-	9N	13E
1922 Mar 13	11:28:46	23	0	-963	102	N	-a	-1.4753	0.1321	-0.8302	96.4	-	-	2N	170W
1922 Apr 11	20:32:13	23	0	-962	140	N	a-	1.1229	0.7812	-0.1863	223.3	-	-	7S	53E
1922 Oct 06	00:43:51	23	0	-956	145	N	t-	-1.2349	0.6358	-0.4508	235.3	-	-	4N	13W
1923 Mar 03	03:32:09	23	0	-951	112	P	-a	-0.8176	1.3453	0.3701	275.3	127.2	-	6N	50W
1923 Aug 26	10:39:51	23	0	-945	117	P	-t	0.9133	1.2013	0.1634	290.9	94.3	-	10S	160W
1924 Feb 20	16:08:55	24	0	-939	122	T-	-p	-0.1338	2.6257	1.5995	343.7	219.7	97.1	11N	121E

1924 Aug 14	20:20:30	24	0	-933	127	T+	pp	0.1175	2.6326	1.6519	332.1	216.9	98.2	14S	56E
1925 Feb 08	21:42:22	24	0	-927	132	P	t-	0.5921	1.8134	0.7304	343.0	185.7	-	15N	38E
1925 Aug 04	11:52:57	24	0	-921	137	P	a-	-0.6208	1.6909	0.7463	291.3	168.9	-	18S	177W
1926 Jan 28	21:20:25	24	0	-915	142	N	t-	1.2837	0.5551	-0.5488	222.7	-	-	19N	43E
1926 Jun 25	21:25:07	24	0	-910	109	N	-a	1.1815	0.6750	-0.2948	213.2	-	-	22S	40E
1926 Jul 25	05:00:12	24	0	-909	147	N	a-	-1.3512	0.3542	-0.5970	155.6	-	-	21S	73W
1926 Dec 19	06:20:08	24	0	-904	114	Nx	-a	-1.0102	1.0257	-0.0163	268.0	-	-	22N	96W
1927 Jun 15	08:24:41	24	0	-898	119	T	-t	0.4543	2.0366	1.0123	338.2	202.8	17.7	23S	126W
1927 Dec 08	17:35:10	24	0	-892	124	T	-p	-0.2796	2.3389	1.3510	321.9	205.6	79.8	22N	94E
1928 Jun 03	12:09:57	24	0	-886	129	T	tp	-0.3175	2.3092	1.2421	365.3	223.0	75.3	23S	177E
1928 Nov 27	09:01:47	24	0	-880	134	T	p-	0.3953	2.1166	1.1486	308.9	194.2	54.8	22N	139W
1929 May 23	12:37:44	24	0	-874	139	N	t-	-1.0651	0.9367	-0.1287	273.8	-	-	21S	169E
1929 Nov 17	00:03:12	24	0	-868	144	N	a-	1.0947	0.8461	-0.1474	235.1	-	-	20N	5W
1930 Apr 13	05:58:54	24	0	-863	111	P	-h	0.9545	1.1067	0.1065	267.4	73.4	-	8S	89W
1930 Oct 07	19:07:10	24	0	-857	116	P	-t	-0.9812	1.0907	0.0253	286.7	38.4	-	5N	71E
1931 Apr 02	20:07:55	24	0	-851	121	T+	-p	0.2043	2.4637	1.5021	318.0	207.9	89.6	5S	59E
1931 Sep 26	19:48:29	24	0	-845	126	T-	pp	-0.2698	2.4059	1.3208	371.3	226.9	84.2	1N	61E
1932 Mar 22	12:32:39	24	0	-839	131	P	a-	-0.4956	1.9303	0.9666	303.9	185.4	-	1S	173E
1932 Sep 14	21:01:00	24	0	-833	136	P	t-	0.4664	2.0296	0.9752	347.3	204.0	-	3S	44E
1933 Feb 10	13:17:35	24	0	-828	103	N	-a	1.5600	0.0184	-1.0268	39.8	-	-	16N	165E
1933 Mar 12	02:33:02	24	0	-827	141	N	a-	-1.2369	0.5924	-0.4153	206.3	-	-	2N	36W
1933 Aug 05	19:46:07	24	0	-822	108	N	-a	-1.4216	0.2324	-0.7336	129.6	-	-	18S	66E
1933 Sep 04	04:52:19	24	0	-821	146	N	a-	1.1776	0.6956	-0.3012	221.5	-	-	6S	74W
1934 Jan 30	16:42:43	24	0	-816	113	P	-t	0.9258	1.2073	0.1120	304.4	80.9	-	18N	113E
1934 Jul 26	12:15:38	24	0	-810	118	P	-a	-0.6681	1.6025	0.6612	285.8	160.8	-	20S	178E
1935 Jan 19	15:47:35	24	0	-804	123	T+	pp	0.2498	2.4502	1.3499	372.2	226.7	86.3	21N	126E
1935 Jul 16	05:00:05	24	0	-798	128	T+	pp	0.0672	2.7146	1.7542	325.1	214.8	99.6	21S	73W
1936 Jan 08	18:09:58	24	0	-792	133	T	a-	-0.4429	2.0740	1.0173	342.2	202.5	20.8	22N	89E
1936 Jul 04	17:25:23	24	0	-786	138	P	t-	0.8642	1.2778	0.2668	289.6	116.3	-	22S	100E
1936 Dec 28	03:49:08	24	0	-780	143	N	a-	-1.0971	0.8451	-0.1550	235.6	-	-	22N	57W
1937 May 25	07:51:34	24	0	-775	110	N	-t	-1.1582	0.7697	-0.3033	254.8	-	-	22S	119W
1937 Nov 18	08:19:25	24	0	-769	115	P	-a	0.9421	1.1141	0.1443	254.6	81.3	-	20N	129W
1938 May 14	08:44:00	24	0	-763	120	T	-t	-0.3994	2.1540	1.0966	355.0	213.1	49.4	19S	132W
1938 Nov 07	22:26:42	24	0	-757	125	T	-p	0.2739	2.3585	1.3525	331.6	210.2	81.4	17N	19E
1939 May 03	15:11:43	24	0	-751	130	T	a-	0.3693	2.1842	1.1765	333.6	207.1	62.4	15S	131E
1939 Oct 28	06:36:43	24	0	-745	135	P	t-	-0.4581	2.0477	0.9876	346.2	203.4	-	12N	103W
1940 Mar 23	19:48:17	24	0	-740	102	N	-a	-1.5034	0.0789	-0.8802	74.7	-	-	3S	64E
1940 Apr 22	04:26:26	25	0	-739	140	N	a-	1.0741	0.8684	-0.0945	232.6	-	-	11S	67W
1940 Oct 16	08:01:18	25	0	-733	145	N	t-	-1.1925	0.7157	-0.3749	248.0	-	-	8N	124W
1941 Mar 13	11:55:47	25	0	-728	112	P	-a	-0.8437	1.2971	0.3226	272.3	119.8	-	2N	177W

1941 Sep 05	17:47:14	25	0	-722	117	P	-t	0.9747	1.0884	0.0511	279.4	53.4	-	6S	93E
1942 Mar 03	00:21:54	25	0	-716	122	T-	-p	-0.1545	2.5879	1.5612	344.4	219.7	95.9	7N	2W
1942 Aug 26	03:48:25	26	0	-710	127	T+	pp	0.1818	2.5142	1.5344	329.6	214.2	93.4	10S	57W
1943 Feb 20	05:38:23	26	0	-704	132	P	t-	0.5752	1.8444	0.7616	345.2	189.0	-	12N	81W
1943 Aug 15	19:28:46	26	0	-698	137	P	a-	-0.5533	1.8152	0.8697	296.8	178.4	-	15S	69E
1944 Feb 09	05:14:57	26	0	-692	142	N	t-	1.2698	0.5793	-0.5223	226.7	-	-	16N	75W
1944 Jul 06	04:40:01	27	0	-687	109	N	-a	1.2597	0.5328	-0.4398	192.8	-	-	21S	69W
1944 Aug 04	12:26:52	27	0	-686	147	N	a-	-1.2843	0.4785	-0.4758	179.2	-	-	18S	175E
1944 Dec 29	14:49:35	27	0	-681	114	Nx	-a	-1.0115	1.0220	-0.0176	266.7	-	-	22N	138E
1945 Jun 25	15:14:22	27	0	-675	119	P	-t	0.5370	1.8862	0.8593	333.4	192.7	-	23S	132E
1945 Dec 19	02:20:47	27	0	-669	124	T	-p	-0.2845	2.3293	1.3424	321.0	204.9	78.9	23N	36W
1946 Jun 14	18:39:17	28	0	-663	129	T-	pp	-0.2324	2.4654	1.3983	369.3	229.1	91.1	23S	80E
1946 Dec 08	17:48:28	28	0	-657	134	T	p-	0.3864	2.1337	1.1639	309.6	194.9	57.3	23N	91E
1947 Jun 03	19:15:43	28	0	-651	139	P	t-	-0.9850	1.0819	0.0202	289.0	34.7	-	23S	70E
1947 Nov 28	08:34:28	28	0	-645	144	N	a-	1.0838	0.8684	-0.1297	238.4	-	-	22N	132W
1948 Apr 23	13:39:19	28	0	-640	111	P	-a	1.0016	1.0172	0.0230	257.7	34.4	-	12S	155E
1948 Oct 18	02:35:41	29	0	-634	116	Nx	-t	-1.0245	1.0141	-0.0571	279.8	-	-	9N	42W
1949 Apr 13	04:11:25	29	0	-628	121	T+	-p	0.2474	2.3825	1.4251	315.9	205.7	84.9	9S	62W
1949 Oct 07	02:56:55	29	0	-622	126	T	-p	-0.3219	2.3118	1.2236	369.3	222.9	72.8	5N	47W
1950 Apr 02	20:44:34	29	0	-616	131	T	a-	-0.4599	1.9951	1.0329	306.6	189.6	26.9	5S	50E
1950 Sep 26	04:17:11	29	0	-610	136	T	t-	0.4101	2.1331	1.0783	350.1	209.8	44.3	1N	66W
1951 Mar 23	10:37:32	30	0	-604	141	N	a-	-1.2099	0.6419	-0.3660	214.4	-	-	2S	158W
1951 Aug 17	03:14:41	30	0	-599	108	N	-a	-1.4828	0.1196	-0.8455	93.7	-	-	15S	47W
1951 Sep 15	12:27:05	30	0	-598	146	N	a-	1.1187	0.8035	-0.1927	234.7	-	-	2S	172E
1952 Feb 11	00:39:48	30	0	-593	113	P	-t	0.9416	1.1782	0.0832	302.0	70.1	-	15N	6W
1952 Aug 05	19:47:55	30	0	-587	118	P	-a	-0.7383	1.4742	0.5318	278.5	147.2	-	18S	65E
1953 Jan 29	23:47:49	30	0	-581	123	T+	-p	0.2606	2.4291	1.3314	371.1	225.8	84.5	18N	7E
1953 Jul 26	12:21:10	30	0	-575	128	T-	pp	-0.0071	2.8265	1.8629	326.6	215.7	100.7	19S	176E
1954 Jan 19	02:32:21	31	0	-569	133	T	a-	-0.4357	2.0852	1.0322	341.3	202.9	28.2	20N	35W
1954 Jul 16	00:20:51	31	0	-563	138	P	t-	0.7877	1.4202	0.4054	301.7	140.9	-	21S	4W
1955 Jan 08	12:33:20	31	0	-557	143	N	a-	-1.0907	0.8555	-0.1421	236.1	-	-	21N	173E
1955 Jun 05	14:23:23	31	0	-552	110	N	-t	-1.2384	0.6218	-0.4498	232.4	-	-	24S	144E
1955 Nov 29	16:59:59	31	0	-546	115	P	-a	0.9551	1.0917	0.1190	253.1	74.2	-	22N	102E
1956 May 24	15:31:52	32	0	-540	120	P	-t	-0.4726	2.0174	0.9647	348.6	204.5	-	21S	126E
1956 Nov 18	06:48:16	32	0	-534	125	T	-p	0.2917	2.3285	1.3172	332.3	209.5	78.4	20N	106W
1957 May 13	22:31:28	32	0	-528	130	T	a-	0.3046	2.3001	1.2982	335.1	211.6	77.6	18S	21E
1957 Nov 07	14:27:30	32	0	-522	135	T	t-	-0.4332	2.0963	1.0305	349.5	206.6	27.9	16N	139E
1958 Apr 04	04:00:13	32	0	-517	102	Ne	-a	-1.5380	0.0136	-0.9421	31.2	-	-	7S	60W
1958 May 03	12:13:30	32	0	-516	140	P	a-	1.0188	0.9676	0.0092	242.3	21.1	-	15S	176E
1958 Oct 27	15:27:51	33	0	-510	145	N	t-	-1.1571	0.7825	-0.3118	258.0	-	-	12N	124E

1959 Mar 24	20:11:57	33	0	-505	112	P	-a	-0.8757	1.2379	0.2643	268.3	109.6	-	2S	58E
1959 Sep 17	01:03:36	33	0	-499	117	N	-t	1.0296	0.9874	-0.0495	268.1	-	-	2S	17W
1960 Mar 13	08:28:21	33	0	-493	122	T-	-p	-0.1799	2.5415	1.5145	344.9	219.4	94.0	3N	125W
1960 Sep 05	11:21:51	33	0	-487	127	T+	-p	0.2422	2.4031	1.4239	326.8	210.9	86.7	6S	171W
1961 Mar 02	13:28:40	34	0	-481	132	P	t-	0.5541	1.8828	0.8006	347.7	192.9	-	8N	161E
1961 Aug 26	03:08:51	34	0	-475	137	P	a-	-0.4895	1.9330	0.9863	301.5	186.0	-	11S	46W
1962 Feb 19	13:03:43	34	0	-469	142	N	t-	1.2511	0.6120	-0.4865	232.0	-	-	12N	168E
1962 Jul 17	11:54:48	34	0	-464	109	N	-a	1.3371	0.3925	-0.5835	168.3	-	-	20S	177W
1962 Aug 15	19:57:31	34	0	-463	147	N	a-	-1.2210	0.5963	-0.3615	198.3	-	-	15S	62E
1963 Jan 09	23:19:42	35	0	-458	114	Nx	-a	-1.0128	1.0180	-0.0184	265.4	-	-	21N	12E
1963 Jul 06	22:02:59	35	0	-452	119	P	-t	0.6197	1.7360	0.7060	327.3	179.9	-	22S	31E
1963 Dec 30	11:07:25	35	0	-446	124	T	-p	-0.2889	2.3206	1.3350	320.1	204.3	78.1	23N	166W
1964 Jun 25	01:06:50	35	0	-440	129	T-	pp	-0.1461	2.6238	1.5565	372.2	233.3	100.8	24S	16W
1964 Dec 19	02:37:54	36	0	-434	134	T	p-	0.3801	2.1461	1.1748	310.2	195.5	58.9	24N	40W
1965 Jun 14	01:49:26	36	0	-428	139	P	t-	-0.9006	1.2351	0.1767	302.8	100.3	-	24S	27W
1965 Dec 08	17:10:31	36	0	-422	144	N	a-	1.0775	0.8820	-0.1200	240.8	-	-	24N	100E
1966 May 04	21:12:07	37	0	-417	111	N	-a	1.0554	0.9158	-0.0727	246.0	-	-	15S	42E
1966 Oct 29	10:12:54	37	0	-411	116	N	-t	-1.0600	0.9517	-0.1249	273.8	-	-	12N	157W
1967 Apr 24	12:07:04	38	0	-405	121	T	-p	0.2972	2.2892	1.3356	313.4	202.8	77.9	12S	178E
1967 Oct 18	10:15:48	38	0	-399	126	T	-t	-0.3653	2.2337	1.1426	367.2	218.9	59.8	9N	157W
1968 Apr 13	04:48:01	39	0	-393	131	T	p-	-0.4173	2.0725	1.1116	309.6	194.2	48.5	9S	72W
1968 Oct 06	11:42:35	39	0	-387	136	T	t-	0.3605	2.2242	1.1691	352.1	214.0	63.0	6N	179W
1969 Apr 02	18:33:05	39	0	-381	141	N	a-	-1.1765	0.7034	-0.3046	223.8	-	-	6S	82E
1969 Aug 27	10:48:17	40	0	-376	108	Ne	-a	-1.5407	0.0134	-0.9514	31.5	-	-	11S	161W
1969 Sep 25	20:10:18	40	0	-375	146	N	a-	1.0656	0.9008	-0.0952	245.2	-	-	2N	55E
1970 Feb 21	08:30:44	40	0	-370	113	P	-t	0.9620	1.1403	0.0464	298.6	52.7	-	11N	124W
1970 Aug 17	03:24:06	41	0	-364	118	P	-a	-0.8053	1.3521	0.4080	270.7	131.4	-	14S	49W
1971 Feb 10	07:45:21	41	0	-358	123	T	-p	0.2741	2.4026	1.3082	369.6	224.7	82.2	15N	112W
1971 Aug 06	19:43:52	42	0	-352	128	T-	pp	-0.0794	2.6958	1.7283	327.4	215.5	99.4	17S	66E
1972 Jan 30	10:54:05	42	0	-346	133	T	a-	-0.4273	2.0987	1.0497	340.4	203.4	34.8	17N	160W
1972 Jul 26	07:16:21	43	0	-340	138	P	t-	0.7117	1.5618	0.5427	312.5	160.2	-	19S	108W
1973 Jan 18	21:17:57	43	0	-334	143	N	a-	-1.0845	0.8656	-0.1292	236.6	-	-	19N	43E
1973 Jun 15	20:50:41	44	0	-329	110	N	-t	-1.3217	0.4685	-0.6020	204.7	-	-	25S	48E
1973 Jul 15	11:39:17	44	0	-328	148	Nb	t-	1.5178	0.1047	-0.9580	99.1	-	-	20S	174W
1973 Dec 10	01:45:06	44	0	-323	115	P	-a	0.9644	1.0760	0.1007	252.1	68.5	-	24N	28W
1974 Jun 04	22:16:44	45	0	-317	120	P	-t	-0.5489	1.8752	0.8270	341.2	193.6	-	23S	26E
1974 Nov 29	15:14:07	45	0	-311	125	T	-p	0.3054	2.3058	1.2896	333.2	209.0	75.8	22N	129E
1975 May 25	05:48:47	46	0	-305	130	T+	p-	0.2367	2.4218	1.4253	336.0	215.2	88.3	21S	88W
1975 Nov 18	22:24:13	46	0	-299	135	T	p-	-0.4134	2.1352	1.0642	352.2	209.0	40.2	19N	20E
1976 May 13	19:55:08	47	0	-293	140	P	a-	0.9586	1.0761	0.1217	251.9	75.4	-	18S	61E

1976 Nov 06	23:02:00	47	0	-287	145	N	t-	-1.1276	0.8383	-0.2593	265.9	-	-	15N	11E
1977 Apr 04	04:19:03	48	0	-282	112	P	-a	-0.9148	1.1657	0.1929	263.0	94.8	-	7S	64W
1977 Sep 27	08:30:08	48	0	-276	117	N	-t	1.0768	0.9008	-0.1360	257.6	-	-	3N	130W
1978 Mar 24	16:23:11	49	0	-270	122	T-	-p	-0.2140	2.4790	1.4518	345.0	218.6	90.7	2S	116E
1978 Sep 16	19:05:01	49	0	-264	127	T	-p	0.2951	2.3060	1.3268	323.9	207.2	78.6	2S	73E
1979 Mar 13	21:08:52	50	0	-258	132	P	t-	0.5254	1.9350	0.8538	350.7	197.7	-	3N	46E
1979 Sep 06	10:55:02	50	0	-252	137	T	a-	-0.4305	2.0421	1.0936	305.3	191.9	44.4	7S	164W
1980 Mar 01	20:46:04	51	0	-246	142	N	t-	1.2270	0.6545	-0.4404	238.6	-	-	8N	52E
1980 Jul 27	19:08:58	51	0	-241	109	N	-a	1.4139	0.2535	-0.7263	137.6	-	-	18S	74E
1980 Aug 26	03:31:21	51	0	-240	147	N	a-	-1.1608	0.7089	-0.2531	214.4	-	-	12S	52W
1981 Jan 20	07:50:48	51	0	-235	114	Nx	-a	-1.0142	1.0136	-0.0192	263.9	-	-	19N	115W
1981 Jul 17	04:47:40	52	0	-229	119	P	-t	0.7045	1.5822	0.5486	319.7	163.2	-	21S	70W
1982 Jan 09	19:56:43	52	0	-223	124	T	-p	-0.2916	2.3147	1.3310	319.2	203.9	77.7	22N	63E
1982 Jul 06	07:31:47	53	0	-217	129	T-	pp	-0.0579	2.7860	1.7180	374.0	235.6	105.7	23S	112W
1982 Dec 30	11:29:37	53	0	-211	134	T	p-	0.3758	2.1545	1.1822	310.7	195.9	60.0	24N	172W
1983 Jun 25	08:23:11	53	0	-205	139	P	t-	-0.8152	1.3901	0.3348	314.8	134.6	-	24S	125W
1983 Dec 20	01:49:57	54	0	-199	144	N	a-	1.0747	0.8890	-0.1167	242.3	-	-	24N	28W
1984 May 15	04:41:03	54	0	-194	111	N	-a	1.1131	0.8071	-0.1759	232.6	-	-	18S	71W
1984 Jun 13	14:26:38	54	0	-193	149	Nb	a-	-1.5240	0.0647	-0.9414	73.0	-	-	25S	143E
1984 Nov 08	17:56:09	54	0	-188	116	N	-t	-1.0900	0.8993	-0.1825	268.5	-	-	16N	88E
1985 May 04	19:57:19	55	0	-182	121	T	-p	0.3520	2.1870	1.2369	310.3	199.0	67.7	16S	60E
1985 Oct 28	17:43:17	55	0	-176	126	T	-t	-0.4022	2.1673	1.0736	365.1	215.0	43.9	13N	91E
1986 Apr 24	12:43:30	55	0	-170	131	T	p-	-0.3683	2.1620	1.2022	312.7	198.8	63.6	13S	169E
1986 Oct 17	19:18:54	55	0	-164	136	T	h-	0.3189	2.3008	1.2455	353.3	216.8	73.7	10N	67E
1987 Apr 14	02:19:48	55	0	-158	141	N	h-	-1.1364	0.7770	-0.2312	234.2	-	-	10S	35W
1987 Oct 07	04:02:29	56	0	-152	146	N	a-	1.0189	0.9864	-0.0095	253.6	-	-	6N	64W
1988 Mar 03	16:13:42	56	0	-147	113	Nx	-t	0.9886	1.0908	-0.0016	293.8	-	-	7N	120E
1988 Aug 27	11:05:29	56	0	-141	118	P	-a	-0.8682	1.2380	0.2916	262.6	113.0	-	11S	165W
1989 Feb 20	15:36:18	56	0	-135	123	T	-p	0.2935	2.3651	1.2747	367.8	223.1	78.5	11N	130E
1989 Aug 17	03:09:07	57	0	-129	128	T-	-p	-0.1491	2.5703	1.5984	327.6	214.3	95.8	14S	46W
1990 Feb 09	19:12:02	57	0	-123	133	T	a-	-0.4148	2.1191	1.0750	339.7	204.3	42.3	14N	76E
1990 Aug 06	14:13:15	57	0	-117	138	P	t-	0.6374	1.7005	0.6766	322.1	175.5	-	16S	148E
1991 Jan 30	05:59:37	58	0	-111	143	N	a-	-1.0752	0.8808	-0.1106	237.6	-	-	17N	87W
1991 Jun 27	03:15:42	58	0	-106	110	N	-t	-1.4064	0.3127	-0.7571	169.6	-	-	25S	48W
1991 Jul 26	18:08:48	58	0	-105	148	N	t-	1.4370	0.2542	-0.8109	152.8	-	-	18S	89E
1991 Dec 21	10:34:00	58	0	-100	115	P	-a	0.9709	1.0651	0.0876	251.6	64.1	-	24N	159W
1992 Jun 15	04:57:57	59	0	-94	120	P	-t	-0.6289	1.7264	0.6822	332.3	179.8	-	24S	74W
1992 Dec 09	23:45:05	59	0	-88	125	T	-p	0.3144	2.2915	1.2709	334.2	208.8	73.9	23N	2E
1993 Jun 04	13:01:26	59	0	-82	130	T+	p-	0.1638	2.5532	1.5617	336.4	217.9	95.8	22S	164E
1993 Nov 29	06:27:06	60	0	-76	135	T	p-	-0.3994	2.1633	1.0876	354.5	210.8	46.7	21N	99W

1994 May 25	03:31:20	60	0	-70	140	P	a-	0.8933	1.1941	0.2432	261.3	104.6	-	20S	53W
1994 Nov 18	06:44:54	61	0	-64	145	N	t-	-1.1048	0.8816	-0.2189	271.7	-	-	18N	105W
1995 Apr 15	12:19:04	61	0	-59	112	P	-a	-0.9594	1.0836	0.1114	256.4	73.0	-	11S	175E
1995 Oct 08	16:05:12	61	0	-53	117	N	-t	1.1179	0.8253	-0.2115	247.7	-	-	7N	116E
1996 Apr 04	00:10:47	62	0	-47	122	T-	-p	-0.2534	2.4068	1.3795	344.8	217.2	85.8	6S	2W
1996 Sep 27	02:55:24	62	0	-41	127	T	-p	0.3426	2.2188	1.2395	321.0	203.3	69.2	2N	46W
1997 Mar 24	04:40:28	62	0	-35	132	P	t-	0.4899	1.9994	0.9195	354.0	203.1	-	1S	68W
1997 Sep 16	18:47:42	63	0	-29	137	T	p-	-0.3768	2.1417	1.1909	308.3	196.5	61.5	3S	77E
1998 Mar 13	04:21:09	63	0	-23	142	N	t-	1.1964	0.7086	-0.3824	246.4	-	-	4N	62W
1998 Aug 08	02:25:55	63	0	-18	109	N	-a	1.4876	0.1206	-0.8637	96.5	-	-	15S	35W
1998 Sep 06	11:11:11	63	0	-17	147	N	a-	-1.1058	0.8122	-0.1544	227.9	-	-	7S	168W
1999 Jan 31	16:18:34	63	0	-12	114	Nx	-a	-1.0190	1.0027	-0.0258	261.8	-	-	16N	119E
1999 Jul 28	11:34:46	64	0	-6	119	P	-t	0.7863	1.4342	0.3966	311.0	142.6	-	18S	172W
2000 Jan 21	04:44:35	64	0	0	124	T	-p	-0.2957	2.3060	1.3246	318.3	203.3	77.0	20N	68W
2000 Jul 16	13:56:39	64	0	6	129	T+	pp	0.0302	2.8375	1.7684	374.5	236.0	106.4	21S	153E

3RD MILLENNIUM CE

In the 3rd millennium CE the total number of lunar eclipses is 2 414 lunar eclipses: 877 penumbral lunar eclipses, 843 partial lunar eclipses, 694 total lunar eclipses (417 central total lunar eclipses, 277 non-central total lunar eclipses).

21ST CENTURY CE

In the 21st century CE the total number of lunar eclipses is 228 lunar eclipses:

**86 penumbral lunar eclipses, 57 partial lunar eclipses, 85 total lunar eclipses
(24 central total lunar eclipses, 61 non-central total lunar eclipses).**

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
			GREATEST			S					m	m	m	°	°
			ECLIPSE												
2001 Jan 09	20:21:40	64	0	12	134	T	p-	0.3720	2.1618	1.1889	311.2	196.3	61.0	22N	57E
2001 Jul 05	14:56:23	64	0	18	139	P	t-	-0.7287	1.5476	0.4947	325.2	159.3	-	23S	137E
2001 Dec 30	10:30:22	64	0	24	144	N	a-	1.0732	0.8933	-0.1155	243.6	-	-	24N	157W
2002 May 26	12:04:27	64	0	29	111	N	-a	1.1759	0.6893	-0.2888	216.6	-	-	20S	179E
2002 Jun 24	21:28:13	64	0	30	149	N	a-	-1.4440	0.2095	-0.7925	129.1	-	-	25S	39E
2002 Nov 20	01:47:41	64	0	35	116	N	-t	-1.1127	0.8600	-0.2264	264.4	-	-	19N	30W
2003 May 16	03:41:13	64	0	41	121	T	-a	0.4123	2.0747	1.1276	306.6	193.9	51.4	19S	56W
2003 Nov 09	01:19:38	64	0	47	126	T	-t	-0.4319	2.1139	1.0178	363.3	211.4	22.0	16N	24W
2004 May 04	20:31:17	65	0	53	131	T	p-	-0.3132	2.2627	1.3035	315.8	203.2	75.5	17S	51E
2004 Oct 28	03:05:11	65	0	59	136	T	p-	0.2846	2.3637	1.3081	353.9	218.7	80.5	13N	50W
2005 Apr 24	09:55:54	65	0	65	141	N	h-	-1.0885	0.8651	-0.1435	245.7	-	-	14S	150W
2005 Oct 17	12:04:27	65	0	71	146	P	a-	0.9796	1.0586	0.0626	259.9	56.0	-	10N	175E
2006 Mar 14	23:48:35	65	0	76	113	Nx	-t	1.0211	1.0301	-0.0603	287.5	-	-	3N	6E
2006 Sep 07	18:52:25	65	0	82	118	P	-a	-0.9262	1.1330	0.1838	254.5	91.1	-	7S	77E
2007 Mar 03	23:21:59	65	0	88	123	T	-p	0.3175	2.3188	1.2328	365.5	221.1	73.4	7N	13E
2007 Aug 28	10:38:27	65	0	94	128	T-	-p	-0.2146	2.4526	1.4758	327.4	212.2	90.0	10S	159W
2008 Feb 21	03:27:09	66	0	100	133	T	a-	-0.3992	2.1451	1.1062	339.1	205.5	49.8	10N	48W
2008 Aug 16	21:11:12	66	0	106	138	P	t-	0.5646	1.8366	0.8076	330.6	188.2	-	13S	43E
2009 Feb 09	14:39:21	66	0	112	143	N	a-	-1.0640	0.8995	-0.0882	238.9	-	-	14N	144E
2009 Jul 07	09:39:44	66	0	117	110	N	-t	-1.4916	0.1562	-0.9132	121.5	-	-	24S	143W
2009 Aug 06	00:40:16	66	0	118	148	N	t-	1.3572	0.4020	-0.6660	189.9	-	-	16S	9W
2009 Dec 31	19:23:46	66	0	123	115	P	-a	0.9766	1.0556	0.0764	251.1	60.0	-	24N	70E
2010 Jun 26	11:39:34	66	0	129	120	P	-t	-0.7091	1.5773	0.5368	322.2	162.9	-	24S	174W
2010 Dec 21	08:18:04	66	0	135	125	T	-p	0.3214	2.2807	1.2561	335.2	208.7	72.3	24N	125W
2011 Jun 15	20:13:43	67	0	141	130	T+	pp	0.0897	2.6868	1.6999	336.2	219.3	100.2	23S	57E
2011 Dec 10	14:32:57	67	0	147	135	T	p-	-0.3882	2.1860	1.1061	356.5	212.3	51.1	23N	140E
2012 Jun 04	11:04:20	67	0	153	140	P	a-	0.8248	1.3183	0.3704	270.1	126.6	-	22S	166W
2012 Nov 28	14:34:07	67	0	159	145	N	t-	-1.0869	0.9155	-0.1873	276.1	-	-	20N	139E
2013 Apr 25	20:08:37	67	0	164	112	P	-a	-1.0121	0.9867	0.0148	247.8	27.0	-	14S	57E

2013 May 25	04:11:07	67	0	165	150	Nb	a-	1.5351	0.0157	-0.9335	33.6	-	-	19S	63W
2013 Oct 18	23:51:25	67	0	170	117	N	-h	1.1508	0.7649	-0.2718	239.2	-	-	11N	2W
2014 Apr 15	07:46:48	67	0	176	122	T	-a	-0.3017	2.3182	1.2907	344.0	214.7	77.8	10S	116W
2014 Oct 08	10:55:44	67	0	182	127	T	-p	0.3827	2.1456	1.1659	318.2	199.5	58.8	6N	167W
2015 Apr 04	12:01:24	68	0	188	132	T	t-	0.4460	2.0792	1.0008	357.6	209.0	4.7	5S	179W
2015 Sep 28	02:48:17	68	0	194	137	T	p-	-0.3296	2.2296	1.2764	310.8	199.9	71.9	2N	44W
2016 Mar 23	11:48:22	68	0	200	142	N	t-	1.1592	0.7748	-0.3118	255.4	-	-	0S	175W
2016 Sep 16	18:55:27	68	0	206	147	N	a-	-1.0549	0.9080	-0.0635	239.4	-	-	3S	75E
2017 Feb 11	00:45:03	68	0	211	114	N	-a	-1.0255	0.9884	-0.0354	259.2	-	-	13N	8W
2017 Aug 07	18:21:38	69	0	217	119	P	-t	0.8669	1.2886	0.2465	301.0	115.3	-	15S	86E
2018 Jan 31	13:31:00	69	0	223	124	T	-p	-0.3014	2.2941	1.3155	317.3	202.8	76.1	17N	161E
2018 Jul 27	20:22:54	69	0	229	129	T+	pp	0.1168	2.6792	1.6087	373.9	234.6	103.0	19S	56E
2019 Jan 21	05:13:27	69	0	235	134	T	p-	0.3684	2.1684	1.1953	311.6	196.8	62.0	20N	75W
2019 Jul 16	21:31:55	69	0	241	139	P	t-	-0.6430	1.7037	0.6531	333.8	178.0	-	22S	39E
2020 Jan 10	19:11:11	69	0	247	144	N	a-	1.0727	0.8956	-0.1160	244.7	-	-	23N	74E
2020 Jun 05	19:26:14	70	0	252	111	N	-a	1.2406	0.5683	-0.4053	198.3	-	-	21S	69E
2020 Jul 05	04:31:12	70	0	253	149	N	a-	-1.3639	0.3546	-0.6436	165.1	-	-	24S	66W
2020 Nov 30	09:44:02	70	0	258	116	N	-t	-1.1309	0.8285	-0.2619	261.1	-	-	21N	148W
2021 May 26	11:19:53	70	0	264	121	T	-a	0.4774	1.9540	1.0095	302.1	187.4	14.5	21S	170W
2021 Nov 19	09:04:06	70	0	270	126	P	-t	-0.4552	2.0720	0.9742	361.6	208.4	-	19N	139W
2022 May 16	04:12:42	70	1	276	131	T-	p-	-0.2532	2.3726	1.4137	318.8	207.3	84.9	19S	64W
2022 Nov 08	11:00:22	71	1	282	136	T+	p-	0.2570	2.4143	1.3589	354.0	219.9	85.0	17N	169W
2023 May 05	17:24:04	71	1	288	141	N	h-	-1.0350	0.9637	-0.0456	257.6	-	-	17S	98E
2023 Oct 28	20:15:17	71	1	294	146	P	a-	0.9472	1.1181	0.1221	264.7	77.4	-	14N	52E
2024 Mar 25	07:14:00	71	1	299	113	N	-t	1.0610	0.9557	-0.1324	279.2	-	-	1S	106W
2024 Sep 18	02:45:26	71	1	305	118	P	-a	-0.9792	1.0373	0.0849	246.4	62.8	-	3S	42W
2025 Mar 14	06:59:56	72	1	311	123	T	-p	0.3485	2.2595	1.1784	362.7	218.3	65.4	3N	102W
2025 Sep 07	18:12:58	72	1	317	128	T	-p	-0.2752	2.3440	1.3619	326.8	209.4	82.1	6S	87E
2026 Mar 03	11:34:52	72	1	323	133	T	a-	-0.3765	2.1839	1.1507	338.7	207.2	58.3	6N	171W
2026 Aug 28	04:14:04	72	1	329	138	P	t-	0.4964	1.9645	0.9299	337.9	198.1	-	9S	63W
2027 Feb 20	23:14:05	73	1	335	143	N	a-	-1.0480	0.9267	-0.0568	241.1	-	-	10N	15E
2027 Jul 18	16:04:11	73	1	340	110	Ne	-t	-1.5759	0.0015	-1.0679	12.1	-	-	22S	121E
2027 Aug 17	07:14:58	73	1	341	148	N	t-	1.2797	0.5457	-0.5253	218.7	-	-	12S	108W
2028 Jan 12	04:14:13	73	1	346	115	P	-a	0.9818	1.0468	0.0662	250.8	56.0	-	23N	61W
2028 Jul 06	18:20:57	73	1	352	120	P	-t	-0.7904	1.4266	0.3892	310.7	141.5	-	23S	86E
2028 Dec 31	16:53:15	73	1	358	125	T	-p	0.3258	2.2742	1.2463	336.3	208.9	71.3	23N	108E
2029 Jun 26	03:23:22	74	1	364	130	T+	pp	0.0124	2.8266	1.8436	335.2	219.6	101.9	23S	50W
2029 Dec 20	22:43:12	74	1	370	135	T	p-	-0.3811	2.2008	1.1174	358.1	213.3	53.7	23N	19E
2030 Jun 15	18:34:33	74	2	376	140	P	a-	0.7535	1.4480	0.5025	278.3	144.4	-	23S	82E
2030 Dec 09	22:28:51	74	2	382	145	N	t-	-1.0732	0.9416	-0.1628	279.3	-	-	22N	21E

2031 May 07	03:52:01	75	2	387	112	N	-a	-1.0695	0.8815	-0.0904	237.4	-	-	18S	59W
2031 Jun 05	11:45:17	75	2	388	150	N	a-	1.4732	0.1292	-0.8199	95.6	-	-	21S	176W
2031 Oct 30	07:46:44	75	2	393	117	N	-h	1.1774	0.7161	-0.3204	231.8	-	-	15N	121W
2032 Apr 25	15:14:51	75	2	399	122	T	-a	-0.3558	2.2192	1.1913	342.5	211.2	65.5	14S	131E
2032 Oct 18	19:03:40	75	2	405	127	T	-p	0.4169	2.0830	1.1028	315.5	196.0	47.1	10N	71E
2033 Apr 14	19:13:51	76	2	411	132	T	t-	0.3954	2.1711	1.0944	361.3	215.0	49.2	9S	72E
2033 Oct 08	10:56:23	76	2	417	137	T	p-	-0.2889	2.3057	1.3497	312.7	202.4	78.8	6N	167W
2034 Apr 03	19:07:00	76	2	423	142	N	t-	1.1144	0.8546	-0.2274	265.5	-	-	5S	75E
2034 Sep 28	02:47:37	76	2	429	147	P	a-	-1.0110	0.9911	0.0145	248.8	26.7	-	1N	44W
2035 Feb 22	09:06:11	76	2	434	114	N	-a	-1.0367	0.9652	-0.0535	255.8	-	-	9N	133W
2035 Aug 19	01:12:15	77	2	440	119	P	-t	0.9434	1.1507	0.1037	289.9	76.5	-	12S	17W
2036 Feb 11	22:13:06	77	2	446	124	T	-p	-0.3110	2.2751	1.2995	316.2	202.0	74.5	14N	31E
2036 Aug 07	02:52:32	77	3	452	129	T+	pp	0.2004	2.5266	1.4544	372.2	231.4	95.3	16S	41W
2037 Jan 31	14:01:38	78	3	458	134	T	p-	0.3619	2.1803	1.2074	312.2	197.5	63.7	18N	153E
2037 Jul 27	04:09:53	78	3	464	139	P	t-	-0.5582	1.8584	0.8095	340.9	192.4	-	20S	60W
2038 Jan 21	03:49:52	78	3	470	144	N	a-	1.0711	0.8996	-0.1140	245.9	-	-	21N	54W
2038 Jun 17	02:45:02	78	3	475	111	N	-a	1.3083	0.4422	-0.5274	176.4	-	-	22S	41W
2038 Jul 16	11:35:56	78	3	476	149	N	a-	-1.2838	0.4999	-0.4952	192.5	-	-	23S	172W
2038 Dec 11	17:45:00	79	3	481	116	N	-t	-1.1449	0.8046	-0.2892	258.5	-	-	22N	93E
2039 Jun 06	18:54:25	79	3	487	121	P	-a	0.5460	1.8272	0.8846	296.8	179.3	-	22S	77E
2039 Nov 30	16:56:28	79	3	493	126	P	-t	-0.4721	2.0418	0.9426	360.2	206.0	-	21N	103E
2040 May 26	11:46:22	79	3	499	131	T-	p-	-0.1872	2.4938	1.5348	321.5	210.8	92.3	21S	177W
2040 Nov 18	19:04:41	80	3	505	136	T+	p-	0.2361	2.4525	1.3974	353.7	220.5	87.8	20N	70E
2041 May 16	00:43:02	80	3	511	141	P	t-	-0.9747	1.0748	0.0645	269.8	58.5	-	20S	12W
2041 Nov 08	04:35:04	80	4	517	146	P	a-	0.9212	1.1657	0.1696	268.1	90.4	-	18N	73W
2042 Apr 05	14:30:12	80	4	522	113	N	-t	1.1080	0.8681	-0.2175	268.5	-	-	5S	144E
2042 Sep 29	10:45:47	81	4	528	118	N	-a	-1.0262	0.9529	-0.0030	238.6	-	-	2N	163W
2043 Mar 25	14:32:04	81	4	534	123	T	-t	0.3849	2.1900	1.1142	359.4	214.6	53.4	2S	144E
2043 Sep 19	01:51:50	81	4	540	128	T	-a	-0.3316	2.2433	1.2556	325.8	206.1	71.7	2S	29W
2044 Mar 13	19:38:33	82	4	546	133	T	a-	-0.3496	2.2303	1.2031	338.5	209.1	66.4	2N	68E
2044 Sep 07	11:20:44	82	4	552	138	T	t-	0.4318	2.0860	1.0456	344.1	206.2	33.9	5S	171W
2045 Mar 03	07:43:25	82	4	558	143	N	a-	-1.0274	0.9624	-0.0168	244.0	-	-	6N	113W
2045 Aug 27	13:54:49	82	4	564	148	N	t-	1.2061	0.6826	-0.3918	241.8	-	-	9S	151E
2046 Jan 22	13:02:37	83	4	569	115	P	-a	0.9886	1.0348	0.0533	250.1	50.4	-	21N	168E
2046 Jul 18	01:06:06	83	5	575	120	P	-t	-0.8692	1.2807	0.2461	298.2	114.6	-	22S	14W
2047 Jan 12	01:26:14	83	5	581	125	T	-p	0.3317	2.2649	1.2341	337.3	208.9	70.0	22N	19W
2047 Jul 07	10:35:45	84	5	587	130	T-	pp	-0.0636	2.7310	1.7513	333.6	218.6	100.8	23S	157W
2048 Jan 01	06:53:55	84	5	593	135	T	p-	-0.3746	2.2141	1.1280	359.5	214.3	55.9	23N	102W
2048 Jun 26	02:02:28	84	5	599	140	P	a-	0.6797	1.5825	0.6388	285.8	159.2	-	23S	30W
2048 Dec 20	06:27:48	84	5	605	145	N	t-	-1.0624	0.9617	-0.1436	281.7	-	-	22N	97W

2049 May 17	11:26:38	85	5	610	112	N	-a	-1.1337	0.7638	-0.2085	224.3	-	-	21S	172W
2049 Jun 15	19:14:12	85	5	611	150	N	a-	1.4069	0.2511	-0.6985	132.0	-	-	22S	72E
2049 Nov 09	15:52:11	85	5	616	117	N	-h	1.1965	0.6809	-0.3553	226.1	-	-	18N	118E
2050 May 06	22:32:02	85	5	622	122	T	-h	-0.4181	2.1052	1.0767	340.1	206.0	43.2	17S	21E
2050 Oct 30	03:21:47	86	5	628	127	T	-p	0.4435	2.0345	1.0538	313.2	192.9	34.5	14N	54W
2051 Apr 26	02:16:28	86	6	634	132	T	p-	0.3371	2.2773	1.2022	364.9	220.9	69.6	13S	34W
2051 Oct 19	19:11:50	86	6	640	137	T-	p-	-0.2542	2.3708	1.4118	314.3	204.3	83.6	10N	69E
2052 Apr 14	02:18:06	87	6	646	142	N	t-	1.0629	0.9466	-0.1305	276.1	-	-	9S	34W
2052 Oct 08	10:45:58	87	6	652	147	P	a-	-0.9727	1.0642	0.0821	256.7	63.3	-	5N	164W
2053 Mar 04	17:22:09	87	6	657	114	N	-a	-1.0531	0.9323	-0.0807	251.2	-	-	5N	102E
2053 Aug 29	08:05:50	87	6	663	119	Nx	-t	1.0165	1.0192	-0.0330	277.8	-	-	8S	121W
2054 Feb 22	06:51:27	88	6	669	124	T	-p	-0.3242	2.2491	1.2769	314.9	200.9	72.1	10N	99W
2054 Aug 18	09:26:30	88	6	675	129	T	pp	0.2806	2.3805	1.3062	369.6	226.6	83.0	13S	140W
2055 Feb 11	22:46:17	88	7	681	134	T	p-	0.3526	2.1970	1.2246	313.0	198.5	66.0	14N	22E
2055 Aug 07	10:53:18	89	7	687	139	P	t-	-0.4769	2.0069	0.9594	346.4	203.4	-	17S	161W
2056 Feb 01	12:26:06	89	7	693	144	N	a-	1.0682	0.9056	-0.1096	247.3	-	-	18N	177E
2056 Jun 27	10:03:09	89	7	698	111	N	-a	1.3770	0.3143	-0.6519	150.0	-	-	22S	150W
2056 Jul 26	18:43:25	89	7	699	149	N	a-	-1.2048	0.6435	-0.3489	214.5	-	-	20S	81E
2056 Dec 22	01:48:56	90	7	704	116	N	-t	-1.1560	0.7857	-0.3109	256.5	-	-	22N	27W
2057 Jun 17	02:26:20	90	7	710	121	P	-a	0.6168	1.6967	0.7555	290.7	169.3	-	23S	36W
2057 Dec 11	00:53:38	90	7	716	126	P	-t	-0.4853	2.0178	0.9181	358.9	204.0	-	23N	15W
2058 Jun 06	19:15:48	91	7	722	131	T-	pp	-0.1181	2.6210	1.6612	323.7	213.4	97.3	23S	71E
2058 Nov 30	03:16:18	91	7	728	136	T+	p-	0.2208	2.4803	1.4260	353.1	220.7	89.7	22N	52W
2059 May 27	07:55:34	91	8	734	141	P	t-	-0.9098	1.1946	0.1830	281.8	97.2	-	22S	119W
2059 Nov 19	13:01:36	92	8	740	146	P	a-	0.9004	1.2038	0.2080	270.6	99.3	-	20N	161E
2060 Apr 15	21:37:05	92	8	745	113	N	-t	1.1622	0.7675	-0.3155	255.0	-	-	9S	37E
2060 Oct 09	18:53:33	92	8	751	118	N	-a	-1.0671	0.8797	-0.0799	231.4	-	-	6N	74E
2060 Nov 08	04:04:13	93	8	752	156	N	a-	1.5332	0.0268	-0.9374	43.8	-	-	18N	65W
2061 Apr 04	21:54:05	93	8	757	123	T	-t	0.4300	2.1044	1.0341	355.1	209.7	29.9	6S	33E
2061 Sep 29	09:38:13	93	8	763	128	T	-a	-0.3810	2.1556	1.1621	324.9	202.4	59.0	2N	146W
2062 Mar 25	03:33:50	94	8	769	133	T	p-	-0.3150	2.2905	1.2695	338.4	211.4	74.7	2S	52W
2062 Sep 18	18:34:02	94	8	775	138	T	p-	0.3736	2.1959	1.1496	349.3	212.5	59.5	1S	80E
2063 Mar 14	16:05:49	94	9	781	143	P	a-	-1.0008	1.0089	0.0343	247.9	40.7	-	1N	121E
2063 Sep 07	20:41:11	95	9	787	148	N	t-	1.1375	0.8102	-0.2677	260.5	-	-	5S	49E
2064 Feb 02	21:48:57	95	9	792	115	P	-a	0.9969	1.0197	0.0377	249.1	42.6	-	18N	37E
2064 Jul 28	07:52:48	95	9	798	120	P	-t	-0.9473	1.1361	0.1038	284.4	75.7	-	20S	116W
2065 Jan 22	09:58:59	96	9	804	125	T	-p	0.3371	2.2561	1.2231	338.3	209.0	68.8	20N	146W
2065 Jul 17	17:48:40	96	9	810	130	T-	pp	-0.1402	2.5890	1.6121	331.2	216.3	97.0	21S	95E
2066 Jan 11	15:04:47	96	9	816	135	T	p-	-0.3687	2.2259	1.1378	360.8	215.2	57.9	21N	136E
2066 Jul 07	09:30:29	97	9	822	140	P	a-	0.6056	1.7179	0.7753	292.4	171.3	-	22S	141W

2066 Dec 31	14:30:09	97	10	828	145	N	t-	-1.0540	0.9773	-0.1281	283.4	-	-	22N	143E
2067 May 28	18:56:07	97	10	833	112	N	-a	-1.2013	0.6403	-0.3329	208.6	-	-	23S	76E
2067 Jun 27	02:41:06	98	10	834	150	N	a-	1.3394	0.3755	-0.5752	159.9	-	-	22S	39W
2067 Nov 21	00:04:42	98	10	839	117	N	-h	1.2107	0.6544	-0.3811	221.6	-	-	21N	4W
2068 May 17	05:42:17	98	10	845	122	P	-t	-0.4852	1.9826	0.9532	336.8	199.0	-	20S	86W
2068 Nov 09	11:47:00	99	10	851	127	T	-p	0.4645	1.9962	1.0149	311.3	190.2	18.4	18N	180E
2069 May 06	09:09:57	99	10	857	132	T+	pp	0.2717	2.3965	1.3230	368.2	226.2	84.3	17S	138W
2069 Oct 30	03:35:06	99	10	863	137	T-	p-	-0.2263	2.4235	1.4616	315.5	205.6	86.8	14N	57W
2070 Apr 25	09:21:25	100	11	869	142	Nx	t-	1.0044	1.0516	-0.0208	287.0	-	-	12S	140W
2070 Oct 19	18:51:12	100	11	875	147	P	a-	-0.9406	1.1258	0.1383	263.3	81.7	-	9N	74E
2071 Mar 16	01:31:09	100	11	880	114	N	-a	-1.0757	0.8879	-0.1194	245.2	-	-	1N	21W
2071 Sep 09	15:05:40	101	11	886	119	N	-t	1.0835	0.8989	-0.1586	265.2	-	-	4S	133E
2072 Mar 04	15:23:07	101	11	892	124	T	-p	-0.3431	2.2126	1.2441	313.3	199.4	68.5	6N	132E
2072 Aug 28	16:05:42	102	11	898	129	T	-t	0.3563	2.2428	1.1662	366.1	220.3	64.2	9S	119E
2073 Feb 22	07:24:53	102	11	904	134	T	p-	0.3389	2.2218	1.2503	313.9	199.8	69.2	10N	107W
2073 Aug 17	17:42:41	102	12	910	139	T	t-	-0.3998	2.1479	1.1013	350.6	211.6	50.1	13S	96E
2074 Feb 11	20:55:58	103	12	916	144	N	a-	1.0612	0.9192	-0.0972	249.6	-	-	15N	50E
2074 Jul 08	17:21:37	103	12	921	111	N	-a	1.4457	0.1870	-0.7765	116.7	-	-	21S	101E
2074 Aug 07	01:56:04	103	12	922	149	N	a-	-1.1291	0.7814	-0.2091	232.3	-	-	17S	27W
2075 Jan 02	09:55:03	104	12	927	116	N	-t	-1.1643	0.7714	-0.3271	255.0	-	-	22N	147W
2075 Jun 28	09:55:36	104	12	933	121	P	-a	0.6897	1.5624	0.6220	283.5	157.0	-	23S	148W
2075 Dec 22	08:55:55	104	12	939	126	P	-t	-0.4945	2.0008	0.9012	357.8	202.6	-	23N	134W
2076 Jun 17	02:39:47	105	12	945	131	T-	pp	-0.0452	2.7555	1.7943	325.5	215.1	100.2	23S	39W
2076 Dec 10	11:34:51	105	13	951	136	T+	p-	0.2102	2.4990	1.4460	352.3	220.6	90.8	23N	175W
2077 Jun 06	14:59:52	106	13	957	141	P	t-	-0.8388	1.3258	0.3123	293.7	125.1	-	24S	135E
2077 Nov 29	21:35:53	106	13	963	146	P	a-	0.8855	1.2309	0.2356	272.1	105.0	-	23N	33E
2078 Apr 27	04:35:45	106	13	968	113	N	-t	1.2223	0.6558	-0.4245	238.3	-	-	13S	69W
2078 Oct 21	03:08:04	107	13	974	118	N	-a	-1.1022	0.8172	-0.1461	224.9	-	-	10N	50W
2078 Nov 19	12:40:02	107	13	975	156	N	a-	1.5148	0.0616	-0.9046	66.1	-	-	21N	166E
2079 Apr 16	05:10:45	107	13	980	123	P	-t	0.4800	2.0100	0.9451	350.2	203.4	-	10S	77W
2079 Oct 10	17:30:30	108	13	986	128	T	-a	-0.4246	2.0786	1.0791	323.9	198.7	42.4	7N	95E
2080 Apr 04	11:23:38	108	14	992	133	T	p-	-0.2751	2.3607	1.3460	338.4	213.6	82.1	6S	170W
2080 Sep 29	01:52:42	109	14	998	138	T	p-	0.3203	2.2967	1.2443	353.8	217.4	73.8	3N	30W
2081 Mar 25	00:22:01	109	14	1004	143	P	a-	-0.9688	1.0653	0.0953	252.5	67.1	-	3S	4W
2081 Sep 18	03:35:25	109	14	1010	148	N	t-	1.0748	0.9271	-0.1544	275.8	-	-	1S	55W
2082 Feb 13	06:29:20	110	14	1015	115	P	-a	1.0101	0.9956	0.0134	247.3	25.6	-	14N	93W
2082 Aug 08	14:46:42	110	14	1021	120	Nx	-t	-1.0204	1.0012	-0.0293	269.8	-	-	17S	141E
2083 Feb 02	18:26:46	111	14	1027	125	T	-p	0.3464	2.2400	1.2052	339.0	208.8	66.5	17N	87E
2083 Jul 29	01:05:34	111	15	1033	130	T-	pp	-0.2143	2.4520	1.4773	328.1	212.9	90.4	19S	14W
2084 Jan 22	23:13:00	111	15	1039	135	T	p-	-0.3610	2.2407	1.1513	362.1	216.3	60.5	19N	15E

2084 Jul 17	16:58:51	112	15	1045	140	P	a-	0.5313	1.8540	0.9119	298.2	181.4	-	20S	107E
2085 Jan 10	22:32:29	112	15	1051	145	N	t-	-1.0453	0.9927	-0.1119	285.0	-	-	21N	24E
2085 Jun 08	02:17:36	113	15	1056	112	N	-a	-1.2746	0.5065	-0.4682	188.6	-	-	24S	34W
2085 Jul 07	10:04:39	113	15	1057	150	N	a-	1.2695	0.5047	-0.4477	183.5	-	-	21S	150W
2085 Dec 01	08:25:35	113	15	1062	117	N	-a	1.2190	0.6387	-0.3957	218.5	-	-	23N	129W
2086 May 28	12:43:47	114	16	1068	122	P	-t	-0.5585	1.8486	0.8180	332.1	189.5	-	22S	169E
2086 Nov 20	20:19:42	114	16	1074	127	P	-p	0.4800	1.9679	0.9865	309.6	188.2	-	20N	52E
2087 May 17	15:55:20	115	16	1080	132	T+	pp	0.1999	2.5276	1.4555	371.1	230.7	95.1	19S	121E
2087 Nov 10	12:05:33	115	16	1086	137	T-	p-	-0.2043	2.4654	1.5006	316.6	206.6	88.9	17N	175E
2088 May 05	16:16:50	115	16	1092	142	P	t-	0.9388	1.1696	0.1020	298.0	77.1	-	16S	116E
2088 Oct 30	03:03:20	116	16	1098	147	P	a-	-0.9147	1.1761	0.1831	268.6	93.7	-	13N	49W
2089 Mar 26	09:34:13	116	16	1103	114	N	-a	-1.1039	0.8332	-0.1681	237.9	-	-	4S	142W
2089 Sep 19	22:11:16	117	17	1109	119	N	-t	1.1448	0.7893	-0.2737	252.3	-	-	0N	26E
2090 Mar 15	23:48:31	117	17	1115	124	T	-p	-0.3675	2.1659	1.2012	311.4	197.5	63.0	1N	5E
2090 Sep 08	22:52:29	118	17	1121	129	T	-t	0.4257	2.1167	1.0377	362.1	213.1	31.8	5S	17E
2091 Mar 05	15:58:22	118	17	1127	134	T	p-	0.3212	2.2537	1.2832	315.1	201.3	72.9	6N	124E
2091 Aug 29	00:38:25	119	17	1133	139	T	t-	-0.3270	2.2810	1.2351	353.5	217.5	72.9	10S	9W
2092 Feb 23	05:21:00	119	17	1139	144	N	a-	1.0509	0.9383	-0.0788	252.4	-	-	11N	76W
2092 Jul 19	00:41:57	119	18	1144	111	Ne	-a	1.5132	0.0621	-0.8992	67.8	-	-	19S	9W
2092 Aug 17	09:14:00	120	18	1145	149	N	a-	-1.0569	0.9131	-0.0757	246.8	-	-	14S	137W
2093 Jan 12	18:00:02	120	18	1150	116	N	-t	-1.1734	0.7553	-0.3443	253.2	-	-	20N	93E
2093 Jul 08	17:24:18	120	18	1156	121	P	-a	0.7632	1.4275	0.4872	275.4	141.9	-	22S	101E
2094 Jan 01	17:00:06	121	18	1162	126	P	-t	-0.5025	1.9858	0.8871	356.6	201.2	-	22N	106E
2094 Jun 28	10:01:57	121	18	1168	131	T+	pp	0.0288	2.7865	1.8234	326.6	215.7	100.6	23S	149W
2094 Dec 21	19:56:32	122	18	1174	136	T+	p-	0.2016	2.5138	1.4627	351.3	220.5	91.6	24N	61E
2095 Jun 17	22:00:11	122	19	1180	141	P	t-	-0.7653	1.4617	0.4459	304.8	147.0	-	24S	31E
2095 Dec 11	06:15:02	123	19	1186	146	P	a-	0.8743	1.2510	0.2565	273.0	109.0	-	24N	95W
2096 May 07	11:24:44	123	19	1191	113	N	-t	1.2897	0.5309	-0.5469	217.0	-	-	16S	171W
2096 Jun 06	02:43:40	123	19	1192	151	Nb	t-	-1.5724	0.0048	-1.0583	21.3	-	-	24S	41W
2096 Oct 31	11:30:24	124	19	1197	118	N	-a	-1.1308	0.7666	-0.2005	219.4	-	-	13N	176W
2096 Nov 29	21:22:20	124	19	1198	156	N	a-	1.5018	0.0863	-0.8815	78.1	-	-	23N	37E
2097 Apr 26	12:18:17	124	19	1203	123	P	-t	0.5377	1.9013	0.8420	344.1	195.2	-	13S	176E
2097 Oct 21	01:30:55	125	19	1209	128	T	-a	-0.4608	2.0152	1.0097	323.1	195.3	15.2	11N	26W
2098 Apr 15	19:04:48	125	20	1215	133	T-	p-	-0.2272	2.4454	1.4370	338.4	215.8	89.0	10S	74E
2098 Oct 10	09:19:58	126	20	1221	138	T	pp	0.2749	2.3831	1.3246	357.5	221.0	82.7	7N	143W
2099 Apr 05	08:30:56	126	20	1227	143	P	a-	-0.9304	1.1334	0.1680	257.8	88.1	-	7S	127W
2099 Sep 29	10:36:38	127	20	1233	148	Nx	t-	1.0175	1.0341	-0.0511	288.4	-	-	3N	162W
2100 Feb 24	15:05:12	127	20	1238	115	N	-a	1.0267	0.9650	-0.0169	244.7	-	-	10N	138E
2100 Aug 19	21:44:59	128	20	1244	120	N	-t	-1.0906	0.8716	-0.1575	254.3	-	-	13S	36E

22ND CENTURY CE

In the 22nd century CE the total number of lunar eclipses will be 238 lunar eclipses: 81 penumbral lunar eclipses, 88 partial lunar eclipses, 69 total lunar eclipses (45 central total lunar eclipses, 24 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
ECLIPSE															
2101 Feb 14	02:50:00	128	21	1250	125	T	-a	0.3584	2.2184	1.1825	339.5	208.4	63.4	13N	38W
2101 Aug 09	08:25:34	129	21	1256	130	T	-p	-0.2864	2.3189	1.3458	324.5	208.4	80.7	16S	124W
2102 Feb 03	07:18:21	129	21	1262	135	T	p-	-0.3514	2.2585	1.1686	363.3	217.5	63.6	16N	106W
2102 Jul 30	00:29:10	130	21	1268	140	T	a-	0.4586	1.9874	1.0451	303.1	189.5	31.3	18S	5W
2103 Jan 23	06:34:00	130	21	1274	145	Nx	t-	-1.0358	1.0096	-0.0936	286.6	-	-	19N	95W
2103 Jun 20	09:36:11	131	21	1279	112	N	-a	-1.3493	0.3704	-0.6062	163.9	-	-	25S	143W
2103 Jul 19	17:28:42	131	22	1280	150	N	a-	1.2003	0.6329	-0.3219	203.5	-	-	20S	100E
2103 Dec 13	16:51:38	131	22	1285	117	N	-a	1.2240	0.6287	-0.4042	216.3	-	-	24N	106E
2104 Jun 08	19:38:40	132	22	1291	122	P	-t	-0.6362	1.7069	0.6746	326.0	176.9	-	23S	66E
2104 Dec 02	04:58:11	132	22	1297	127	P	-a	0.4911	1.9476	0.9661	308.3	186.5	-	22N	77W
2105 May 28	22:34:06	133	22	1303	132	T+	pp	0.1227	2.6687	1.5977	373.2	234.0	102.4	21S	21E
2105 Nov 21	20:42:00	133	22	1309	137	T-	p-	-0.1875	2.4976	1.5301	317.4	207.3	90.4	20N	47E
2106 May 17	23:06:43	134	23	1315	142	P	t-	0.8678	1.2975	0.2345	308.5	114.5	-	19S	13E
2106 Nov 11	11:22:14	134	23	1321	147	P	a-	-0.8948	1.2153	0.2171	272.9	101.7	-	16N	174W
2107 Apr 07	17:30:10	135	23	1326	114	N	-a	-1.1383	0.7671	-0.2283	228.8	-	-	8S	98E
2107 May 07	04:30:26	135	23	1327	152	Nb	a-	1.5589	0.0059	-1.0103	22.3	-	-	15S	68W
2107 Oct 02	05:23:18	135	23	1332	119	N	-t	1.1998	0.6911	-0.3774	239.2	-	-	4N	83W
2108 Mar 27	08:06:28	136	23	1338	124	T	-p	-0.3982	2.1076	1.1466	309.1	194.9	54.7	3S	120W
2108 Sep 20	05:47:10	136	23	1344	129	P	-t	0.4884	2.0030	0.9213	357.7	205.1	-	1S	88W
2109 Mar 17	00:22:28	137	24	1350	134	T	p-	0.2962	2.2989	1.3296	316.5	203.3	77.5	2N	3W
2109 Sep 09	07:43:03	137	24	1356	139	T-	p-	-0.2608	2.4024	1.3568	355.3	221.6	85.6	6S	116W

2110 Mar 06	13:37:21	138	24	1362	144	N	a-	1.0346	0.9686	-0.0490	256.5	-	-	7N	159E
2110 Aug 29	16:38:48	138	24	1368	149	P	a-	-0.9893	1.0366	0.0488	258.6	49.8	-	10S	111E
2111 Jan 25	02:03:06	139	24	1373	116	N	-t	-1.1834	0.7371	-0.3630	250.8	-	-	18N	27W
2111 Jul 21	00:53:17	139	25	1379	121	P	-a	0.8362	1.2938	0.3530	266.4	123.2	-	20S	11W
2112 Jan 14	01:06:36	140	25	1385	126	P	-t	-0.5087	1.9735	0.8764	355.4	200.1	-	21N	14W
2112 Jul 09	17:19:51	141	25	1391	131	T+	pp	0.1055	2.6470	1.6814	327.0	215.2	98.4	22S	102E
2113 Jan 02	04:22:59	141	25	1397	136	T+	p-	0.1964	2.5221	1.4735	350.2	220.2	92.1	23N	64W
2113 Jun 29	04:55:26	142	25	1403	141	P	t-	-0.6888	1.6035	0.5850	315.2	165.2	-	24S	72W
2113 Dec 22	14:58:42	142	25	1409	146	P	a-	0.8666	1.2644	0.2712	273.3	111.5	-	24N	135E
2114 May 19	18:07:34	143	26	1414	113	N	-t	1.3612	0.3984	-0.6770	190.2	-	-	19S	88E
2114 Jun 18	09:17:06	143	26	1415	151	N	t-	-1.4945	0.1479	-0.9157	117.4	-	-	25S	139W
2114 Nov 12	19:59:34	143	26	1420	118	N	-a	-1.1534	0.7271	-0.2439	214.9	-	-	17N	57E
2114 Dec 12	06:09:25	143	26	1421	156	N	a-	1.4932	0.1026	-0.8666	85.1	-	-	25N	94W
2115 May 08	19:21:24	144	26	1426	123	P	-t	0.5996	1.7849	0.7311	337.0	185.0	-	17S	70E
2115 Nov 02	09:36:34	144	26	1432	128	P	-a	-0.4919	1.9611	0.9498	322.5	192.0	-	14N	147W
2116 Apr 27	02:41:18	145	26	1438	133	T-	p-	-0.1746	2.5388	1.5364	338.2	217.7	94.6	14S	40W
2116 Oct 21	16:53:39	146	27	1444	138	T+	pp	0.2353	2.4587	1.3943	360.6	223.9	88.8	11N	103E
2117 Apr 16	16:32:00	146	27	1450	143	P	a-	-0.8852	1.2140	0.2530	263.7	106.7	-	11S	112E
2117 Oct 10	17:47:12	147	27	1456	148	P	t-	0.9676	1.1274	0.0387	298.6	48.5	-	8N	90E
2118 Mar 07	23:33:05	147	27	1461	115	N	-a	1.0496	0.9229	-0.0587	240.9	-	-	6N	11E
2118 Aug 31	04:51:46	148	27	1467	120	N	-t	-1.1543	0.7541	-0.2739	238.5	-	-	10S	72W
2119 Feb 25	11:05:13	148	28	1473	125	T	-a	0.3765	2.1857	1.1490	339.6	207.4	58.1	10N	162W
2119 Aug 20	15:51:55	149	28	1479	130	T	-p	-0.3538	2.1946	1.2227	320.4	203.2	67.3	13S	124E
2120 Feb 14	15:17:20	149	28	1485	135	T	p-	-0.3371	2.2848	1.1950	364.7	219.2	67.9	13N	135E
2120 Aug 09	08:01:32	150	28	1491	140	T	a-	0.3875	2.1182	1.1751	307.2	196.0	59.3	15S	118W
2121 Feb 02	14:32:39	151	28	1497	145	Nx	t-	-1.0235	1.0309	-0.0700	288.5	-	-	16N	145E
2121 Jun 30	16:49:53	151	28	1502	112	N	-a	-1.4273	0.2287	-0.7505	131.0	-	-	25S	109E
2121 Jul 30	00:52:43	151	29	1503	150	N	a-	1.1312	0.7611	-0.1968	220.9	-	-	17S	11W
2121 Dec 24	01:22:13	152	29	1508	117	N	-a	1.2261	0.6238	-0.4071	214.9	-	-	25N	20W
2122 Jun 20	02:27:47	152	29	1514	122	P	-t	-0.7177	1.5584	0.5240	318.4	160.2	-	24S	36W
2122 Dec 13	13:42:41	153	29	1520	127	P	-a	0.4980	1.9348	0.9536	307.2	185.4	-	24N	153E
2123 Jun 09	05:06:28	153	29	1526	132	T+	pp	0.0406	2.8189	1.7488	374.4	235.8	106.1	23S	76W
2123 Dec 03	05:24:09	154	29	1532	137	T-	p-	-0.1755	2.5208	1.5507	318.1	207.8	91.4	22N	83W
2124 May 28	05:50:59	155	30	1538	142	P	t-	0.7913	1.4357	0.3770	318.5	141.9	-	21S	88W
2124 Nov 21	19:47:21	155	30	1544	147	P	a-	-0.8809	1.2434	0.2401	276.2	106.9	-	19N	60E
2125 Apr 18	01:18:47	156	30	1549	114	N	-a	-1.1792	0.6890	-0.3004	217.6	-	-	12S	19W
2125 May 17	11:46:31	156	30	1550	152	N	a-	1.4924	0.1249	-0.8854	101.0	-	-	18S	177W
2125 Oct 12	12:43:05	156	30	1555	119	N	-t	1.2476	0.6062	-0.4679	226.7	-	-	9N	166E
2126 Apr 07	16:17:55	157	30	1561	124	T	-a	-0.4346	2.0389	1.0817	306.4	191.5	41.6	7S	117E
2126 Oct 01	12:49:48	158	31	1567	129	P	-t	0.5447	1.9011	0.8169	353.2	196.7	-	4N	165E

2127	Mar 28	08:40:17	158	31	1573	134	T+	p-	0.2664	2.3531	1.3849	318.1	205.5	82.3	3S	128W
2127	Sep 20	14:56:04	159	31	1579	139	T-	p-	-0.2007	2.5127	1.4672	356.3	224.2	93.5	1S	135E
2128	Mar 16	21:46:08	159	31	1585	144	Nx	a-	1.0128	1.0086	-0.0093	261.4	-	-	2N	37E
2128	Sep 09	00:10:30	160	31	1591	149	P	a-	-0.9266	1.1513	0.1642	268.3	89.7	-	6S	2W
2129	Feb 04	10:02:24	160	32	1596	116	N	-t	-1.1959	0.7140	-0.3858	247.7	-	-	15N	147W
2129	Jul 31	08:24:30	161	32	1602	121	P	-a	0.9070	1.1644	0.2224	256.6	99.7	-	17S	124W
2130	Jan 24	09:10:19	162	32	1608	126	P	-t	-0.5173	1.9565	0.8619	353.8	198.7	-	19N	134W
2130	Jul 21	00:38:56	162	32	1614	131	T+	-p	0.1803	2.5113	1.5426	326.7	213.4	93.6	20S	7W
2131	Jan 13	12:49:59	163	32	1620	136	T+	p-	0.1915	2.5296	1.4842	349.0	219.9	92.5	22N	170E
2131	Jul 10	11:47:56	164	33	1626	141	P	t-	-0.6108	1.7484	0.7265	324.6	180.5	-	23S	175W
2132	Jan 02	23:44:22	164	33	1632	146	P	a-	0.8604	1.2750	0.2835	273.5	113.6	-	24N	5E
2132	May 30	00:42:51	165	33	1637	113	N	-t	1.4381	0.2563	-0.8169	154.5	-	-	21S	10W
2132	Jun 28	15:45:35	165	33	1638	151	N	t-	-1.4128	0.2982	-0.7662	164.8	-	-	24S	125E
2132	Nov 23	04:35:11	165	33	1643	118	N	-a	-1.1708	0.6969	-0.2776	211.5	-	-	19N	71W
2132	Dec 22	14:59:50	165	33	1644	156	N	a-	1.4874	0.1139	-0.8564	89.6	-	-	25N	135E
2133	May 19	02:16:19	166	33	1649	123	P	-t	0.6688	1.6553	0.6067	328.5	171.6	-	19S	34W
2133	Nov 12	17:50:08	167	34	1655	128	P	-a	-0.5157	1.9203	0.9033	322.3	189.3	-	17N	89E
2134	May 08	10:10:41	167	34	1661	133	T-	pp	-0.1152	2.6447	1.6482	337.7	219.0	98.8	17S	153W
2134	Nov 02	00:34:20	168	34	1667	138	T+	pp	0.2022	2.5222	1.4522	363.2	226.0	93.0	15N	12W
2135	Apr 28	00:26:35	169	34	1673	143	P	a-	-0.8344	1.3052	0.3484	270.0	123.3	-	15S	7W
2135	Oct 22	01:06:04	169	35	1679	148	P	t-	0.9243	1.2086	0.1164	306.7	83.1	-	12N	20W
2136	Mar 18	07:53:56	170	35	1684	115	N	-a	1.0778	0.8708	-0.1103	235.7	-	-	2N	115W
2136	Apr 16	17:08:42	170	35	1685	153	Nb	a-	-1.5241	0.0398	-0.9171	53.5	-	-	12S	103E
2136	Sep 10	12:05:08	170	35	1690	120	N	-t	-1.2134	0.6453	-0.3820	222.3	-	-	6S	179E
2137	Mar 07	19:13:43	171	35	1696	125	T	-a	0.3993	2.1441	1.1069	339.4	205.9	50.0	5N	75E
2137	Aug 30	23:24:05	172	35	1702	130	T	-p	-0.4171	2.0782	1.1069	316.0	197.2	48.3	9S	10E
2138	Feb 24	23:09:56	172	36	1708	135	T	p-	-0.3178	2.3198	1.2306	366.2	221.1	73.1	9N	16E
2138	Aug 20	15:38:45	173	36	1714	140	T	p-	0.3204	2.2421	1.2977	310.5	200.9	74.3	12S	127E
2139	Feb 13	22:28:16	174	36	1720	145	Nx	t-	-1.0083	1.0574	-0.0406	290.9	-	-	12N	27E
2139	Jul 12	00:01:47	174	36	1725	112	Ne	-a	-1.5055	0.0866	-0.8956	82.0	-	-	23S	2E
2139	Aug 10	08:18:09	174	36	1726	150	N	a-	1.0638	0.8866	-0.0748	236.1	-	-	15S	123W
2140	Jan 04	09:55:17	175	36	1731	117	N	-a	1.2271	0.6209	-0.4075	213.7	-	-	24N	147W
2140	Jun 30	09:13:17	175	37	1737	122	P	-t	-0.8013	1.4064	0.3695	309.0	138.2	-	24S	136W
2140	Dec 23	22:29:48	176	37	1743	127	P	-a	0.5028	1.9255	0.9450	306.3	184.6	-	24N	23E
2141	Jun 19	11:34:51	177	37	1749	132	T-	pp	-0.0446	2.8112	1.7415	374.5	235.9	106.1	23S	173W
2141	Dec 13	14:10:16	177	37	1755	137	T-	p-	-0.1671	2.5374	1.5652	318.8	208.2	92.0	23N	147E
2142	Jun 08	12:32:42	178	37	1761	142	P	t-	0.7119	1.5794	0.5247	327.4	163.2	-	22S	172E
2142	Dec 03	04:16:11	179	38	1767	147	P	a-	-0.8705	1.2648	0.2569	279.0	110.6	-	21N	66W
2143	Apr 29	09:01:21	179	38	1772	114	N	-a	-1.2257	0.6009	-0.3829	204.2	-	-	16S	135W
2143	May 28	18:59:25	179	38	1773	152	N	a-	1.4220	0.2513	-0.7536	140.9	-	-	20S	75E

2143 Oct 23	20:10:37	180	38	1778	119	N	-t	1.2886	0.5337	-0.5457	214.9	-	-	13N	54E
2144 Apr 18	00:20:29	181	38	1784	124	T	-a	-0.4787	1.9563	1.0026	303.0	187.0	7.6	11S	5W
2144 Oct 11	20:02:14	181	39	1790	129	P	-t	0.5930	1.8136	0.7268	348.8	188.4	-	8N	57E
2145 Apr 07	16:48:09	182	39	1796	134	T+	p-	0.2285	2.4221	1.4550	319.9	207.9	87.3	7S	109E
2145 Sep 30	22:19:51	183	39	1802	139	T-	pp	-0.1486	2.6083	1.5628	356.6	225.7	98.2	3N	23E
2146 Mar 28	05:44:28	183	39	1808	144	P	a-	0.9833	1.0630	0.0449	267.7	48.6	-	2S	84W
2146 Sep 20	07:51:28	184	39	1814	149	P	a-	-0.8707	1.2537	0.2669	276.0	112.3	-	2S	118W
2147 Feb 15	17:57:14	185	40	1819	116	N	-t	-1.2115	0.6849	-0.4138	243.4	-	-	12N	95E
2147 Aug 11	15:57:02	185	40	1825	121	P	-a	0.9765	1.0378	0.0941	245.9	66.0	-	14S	123E
2147 Sep 09	23:11:35	185	40	1826	159	Nb	a-	-1.5372	0.0124	-0.9379	29.8	-	-	7S	13E
2148 Feb 04	17:13:45	186	40	1831	126	P	-t	-0.5265	1.9380	0.8465	352.1	197.2	-	16N	106E
2148 Jul 31	07:56:37	187	40	1837	131	T+	-p	0.2554	2.3755	1.4030	325.8	210.4	85.3	18S	117W
2149 Jan 23	21:17:23	187	40	1843	136	T+	p-	0.1859	2.5379	1.4962	347.8	219.6	93.0	19N	44E
2149 Jul 20	18:38:11	188	41	1849	141	P	t-	-0.5315	1.8957	0.8701	333.2	193.3	-	21S	83E
2150 Jan 13	08:31:36	189	41	1855	146	P	a-	0.8552	1.2834	0.2941	273.4	115.3	-	22N	125W
2150 Jun 10	07:14:49	189	41	1860	113	Ne	-t	1.5172	0.1101	-0.9612	102.5	-	-	22S	108W
2150 Jul 09	22:13:22	189	41	1861	151	N	t-	-1.3301	0.4506	-0.6150	200.0	-	-	23S	29E
2150 Dec 04	13:14:46	190	41	1866	118	N	-a	-1.1849	0.6727	-0.3050	208.8	-	-	21N	160E
2151 Jan 02	23:51:26	190	41	1867	156	N	a-	1.4829	0.1225	-0.8484	92.9	-	-	24N	4E
2151 May 30	09:09:10	191	42	1872	123	P	-t	0.7403	1.5216	0.4780	318.7	155.1	-	21S	137W
2151 Nov 24	02:08:13	191	42	1878	128	P	-a	-0.5351	1.8875	0.8651	322.3	187.0	-	20N	35W
2152 May 18	17:35:13	192	42	1884	133	T-	pp	-0.0511	2.7597	1.7688	336.8	219.7	101.2	20S	96E
2152 Nov 12	08:21:47	193	42	1890	138	T+	pp	0.1753	2.5743	1.4989	365.5	227.5	95.8	18N	129W
2153 May 08	08:14:39	194	42	1896	143	P	a-	-0.7781	1.4065	0.4536	276.4	138.3	-	18S	124W
2153 Nov 01	08:34:03	194	43	1902	148	P	t-	0.8882	1.2763	0.1811	313.1	102.7	-	15N	132W
2154 Mar 29	16:05:08	195	43	1907	115	N	-a	1.1136	0.8050	-0.1756	228.7	-	-	3S	121E
2154 Apr 28	01:04:31	195	43	1908	153	N	a-	-1.4784	0.1230	-0.8326	93.3	-	-	15S	17W
2154 Sep 21	19:29:08	196	43	1913	120	N	-t	-1.2647	0.5511	-0.4758	206.6	-	-	2S	67E
2154 Oct 21	09:26:05	196	43	1914	158	Nb	t-	1.5560	0.0350	-1.0284	56.6	-	-	12N	145W
2155 Mar 19	03:12:45	196	43	1919	125	T	-a	0.4293	2.0891	1.0517	338.6	203.4	35.5	1N	45W
2155 Sep 11	07:03:11	197	44	1925	130	T	-a	-0.4752	1.9715	1.0003	311.5	190.7	2.6	5S	106W
2156 Mar 07	06:54:14	198	44	1931	135	T	p-	-0.2922	2.3663	1.2783	367.8	223.5	79.0	5N	100W
2156 Aug 30	23:20:37	198	44	1937	140	T+	p-	0.2569	2.3595	1.4132	313.1	204.6	83.9	8S	11E
2157 Feb 24	06:16:35	199	44	1943	145	P	t-	-0.9868	1.0950	0.0006	294.3	6.0	-	9N	90W
2157 Aug 20	15:46:35	200	44	1949	150	P	a-	0.9993	1.0071	0.0416	249.3	45.1	-	11S	125E
2158 Jan 14	18:29:53	200	45	1954	117	N	-a	1.2275	0.6184	-0.4068	212.6	-	-	22N	86E
2158 Jul 11	15:55:51	201	45	1960	122	P	-t	-0.8860	1.2525	0.2126	297.8	107.6	-	23S	124E
2159 Jan 04	07:19:20	202	45	1966	127	P	-a	0.5062	1.9188	0.9394	305.5	184.0	-	23N	108W
2159 Jun 30	18:00:09	203	45	1972	132	T-	pp	-0.1323	2.6503	1.5809	373.5	234.1	102.0	23S	92E
2159 Dec 24	23:00:09	203	46	1978	137	T-	p-	-0.1619	2.5478	1.5737	319.3	208.5	92.4	23N	16E

2160 Jun 18	19:10:10	204	46	1984	142	P	t-	0.6280	1.7313	0.6804	335.3	180.8	-	23S	74E
2160 Dec 13	12:50:19	205	46	1990	147	P	a-	-0.8651	1.2768	0.2647	280.9	112.4	-	22N	167E
2161 May 09	16:38:02	205	46	1995	114	N	-a	-1.2777	0.5027	-0.4757	187.8	-	-	19S	110E
2161 Jun 08	02:08:54	206	46	1996	152	N	a-	1.3476	0.3853	-0.6145	171.6	-	-	22S	32W
2161 Nov 03	03:45:48	206	46	2001	119	N	-t	1.3227	0.4736	-0.6107	204.2	-	-	16N	60W
2162 Apr 29	08:17:08	207	47	2007	124	P	-a	-0.5280	1.8642	0.9137	299.0	181.3	-	15S	124W
2162 Oct 23	03:23:58	208	47	2013	129	P	-t	0.6341	1.7395	0.6504	344.7	180.3	-	12N	54W
2163 Apr 19	00:49:33	208	47	2019	134	T+	p-	0.1858	2.5001	1.5338	321.6	210.2	91.8	11S	12W
2163 Oct 12	05:51:53	209	47	2025	139	T-	pp	-0.1026	2.6927	1.6471	356.4	226.3	100.9	7N	90W
2164 Apr 07	13:34:34	210	48	2031	144	P	h-	0.9480	1.1278	0.1095	274.7	75.5	-	6S	158E
2164 Sep 30	15:40:32	211	48	2037	149	P	a-	-0.8210	1.3450	0.3582	282.1	128.0	-	2N	123E
2165 Feb 26	01:44:01	211	48	2042	116	N	-t	-1.2329	0.6447	-0.4524	237.2	-	-	8N	22W
2165 Aug 21	23:34:20	212	48	2048	121	N	-a	1.0418	0.9193	-0.0268	234.6	-	-	11S	8E
2165 Sep 20	07:05:17	212	48	2049	159	N	a-	-1.4859	0.1075	-0.8446	86.9	-	-	2S	107W
2166 Feb 15	01:11:40	213	49	2054	126	P	-t	-0.5403	1.9109	0.8232	349.9	195.0	-	12N	14W
2166 Aug 11	15:17:07	214	49	2060	131	T	-a	0.3274	2.2456	1.2688	324.2	206.3	73.3	15S	133E
2167 Feb 04	05:41:32	214	49	2066	136	T+	p-	0.1772	2.5517	1.5143	346.5	219.5	93.8	16N	81W
2167 Aug 01	01:28:59	215	49	2072	141	T	t-	-0.4536	2.0407	1.0108	340.6	203.7	16.7	18S	20W
2168 Jan 24	17:17:30	216	50	2078	146	P	a-	0.8487	1.2940	0.3074	273.5	117.4	-	20N	105E
2168 Jul 20	04:38:50	217	50	2084	151	N	t-	-1.2455	0.6066	-0.4606	229.0	-	-	22S	67W
2168 Dec 14	21:59:25	217	50	2089	118	N	-a	-1.1945	0.6565	-0.3242	207.0	-	-	22N	30E
2169 Jan 13	08:43:52	217	50	2090	156	N	a-	1.4795	0.1288	-0.8423	95.2	-	-	23N	128W
2169 Jun 09	15:57:06	218	50	2095	123	P	-t	0.8159	1.3806	0.3416	307.3	133.5	-	22S	122E
2169 Dec 04	10:31:58	219	50	2101	128	P	-a	-0.5488	1.8648	0.8375	322.6	185.4	-	22N	159W
2170 May 30	00:55:17	220	51	2107	133	T+	pp	0.0174	2.8188	1.8330	335.4	219.4	101.7	22S	13W
2170 Nov 23	16:16:21	220	51	2113	138	T+	pp	0.1554	2.6134	1.5331	367.3	228.7	97.7	21N	113E
2171 May 19	15:56:55	221	51	2119	143	P	a-	-0.7167	1.5175	0.5681	282.8	151.9	-	21S	121E
2171 Nov 12	16:10:02	222	51	2125	148	P	t-	0.8584	1.3323	0.2344	318.1	115.9	-	18N	114E
2172 Apr 09	00:08:53	223	52	2130	115	N	-a	1.1549	0.7290	-0.2512	219.9	-	-	7S	0W
2172 May 08	08:53:16	223	52	2131	153	N	a-	-1.4275	0.2158	-0.7387	122.7	-	-	19S	134W
2172 Oct 02	03:01:43	223	52	2136	120	N	-h	-1.3098	0.4682	-0.5584	191.3	-	-	3N	47W
2172 Oct 31	17:09:14	223	52	2137	158	N	h-	1.5198	0.1017	-0.9622	95.6	-	-	16N	99E
2173 Mar 29	11:02:23	224	52	2142	125	P	-a	0.4662	2.0214	0.9839	337.2	199.9	-	3S	163W
2173 Sep 21	14:50:18	225	52	2148	130	P	-a	-0.5273	1.8761	0.9046	307.0	184.0	-	1S	137E
2174 Mar 18	14:30:50	226	53	2154	135	T-	pp	-0.2605	2.4236	1.3371	369.5	226.0	85.2	1N	145E
2174 Sep 11	07:08:03	226	53	2160	140	T+	p-	0.1982	2.4683	1.5197	315.1	207.3	90.3	4S	107W
2175 Mar 07	13:59:52	227	53	2166	145	P	t-	-0.9608	1.1406	0.0503	298.2	54.8	-	4N	153E
2175 Aug 31	23:19:03	228	53	2172	150	P	a-	0.9385	1.1208	0.1507	260.7	84.8	-	8S	11E
2176 Jan 26	03:03:40	229	54	2177	117	N	-a	1.2293	0.6133	-0.4082	211.0	-	-	20N	42W
2176 Jul 21	22:36:53	229	54	2183	122	P	-t	-0.9708	1.0986	0.0553	284.7	56.3	-	21S	24E

2177	Jan 14	16:08:55	230	54	2189	127	P	-a	0.5099	1.9112	0.9334	304.7	183.3	-	22N	121E
2177	Jul 11	00:25:22	231	54	2195	132	T-	pp	-0.2199	2.4896	1.4199	371.3	230.4	93.0	22S	4W
2178	Jan 04	07:50:14	232	55	2201	137	T-	p-	-0.1570	2.5574	1.5820	319.9	208.8	92.8	23N	115W
2178	Jun 30	01:48:39	233	55	2207	142	P	t-	0.5439	1.8841	0.8365	341.9	194.6	-	23S	25W
2178	Dec 24	21:26:20	233	55	2213	147	P	a-	-0.8615	1.2853	0.2694	282.6	113.6	-	23N	39E
2179	May 21	00:09:09	234	55	2218	114	N	-a	-1.3347	0.3956	-0.5778	167.6	-	-	21S	2W
2179	Jun 19	09:16:10	234	55	2219	152	N	a-	1.2702	0.5251	-0.4702	196.8	-	-	22S	138W
2179	Nov 14	11:28:05	235	55	2224	119	N	-t	1.3505	0.4249	-0.6641	194.8	-	-	19N	175W
2180	May 09	16:05:58	236	56	2230	124	P	-a	-0.5840	1.7599	0.8123	294.2	173.9	-	18S	119E
2180	Nov 02	10:55:47	237	56	2236	129	P	-t	0.6669	1.6802	0.5891	341.1	173.2	-	16N	167W
2181	Apr 29	08:40:08	237	56	2242	134	T+	pp	0.1345	2.5938	1.6281	323.4	212.4	95.9	15S	130W
2181	Oct 22	13:35:21	238	57	2248	139	T-	pp	-0.0652	2.7613	1.7157	355.8	226.4	102.2	11N	153E
2182	Apr 18	21:14:15	239	57	2254	144	P	h-	0.9050	1.2069	0.1884	282.6	98.3	-	10S	42E
2182	Oct 11	23:38:06	240	57	2260	149	P	a-	-0.7776	1.4246	0.4376	286.9	139.4	-	7N	3E
2183	Mar 09	09:24:15	241	57	2265	116	N	-t	-1.2593	0.5953	-0.4997	229.1	-	-	3N	138W
2183	Sep 02	07:15:21	241	57	2271	121	N	-a	1.1037	0.8072	-0.1418	222.7	-	-	7S	108W
2183	Oct 01	15:05:27	242	58	2272	159	N	a-	-1.4397	0.1934	-0.7609	115.6	-	-	2N	133E
2184	Feb 26	09:05:35	242	58	2277	126	P	-t	-0.5579	1.8762	0.7930	347.2	192.0	-	8N	132W
2184	Aug 21	22:38:35	243	58	2283	131	T	-a	0.3977	2.1190	1.1374	322.1	201.0	54.8	11S	22E
2185	Feb 14	14:03:41	244	58	2289	136	T+	p-	0.1660	2.5697	1.5372	345.2	219.4	94.8	13N	154E
2185	Aug 11	08:20:59	245	58	2295	141	T	t-	-0.3774	2.1829	1.1483	347.0	212.0	59.3	15S	123W
2186	Feb 04	02:01:15	246	59	2301	146	P	a-	0.8402	1.3080	0.3244	273.8	120.1	-	17N	26W
2186	Jul 31	11:07:15	246	59	2307	151	N	t-	-1.1630	0.7589	-0.3102	252.7	-	-	19S	164W
2186	Dec 26	06:46:26	247	59	2312	118	N	-a	-1.2018	0.6443	-0.3389	205.8	-	-	22N	100W
2187	Jan 24	17:35:20	247	59	2313	156	N	a-	1.4758	0.1354	-0.8355	97.6	-	-	21N	100E
2187	Jun 20	22:44:13	248	59	2318	123	P	-t	0.8929	1.2372	0.2025	294.5	104.6	-	23S	21E
2187	Dec 15	18:58:37	249	60	2324	128	P	-a	-0.5595	1.8473	0.8155	323.2	184.1	-	23N	75E
2188	Jun 09	08:12:51	250	60	2330	133	T+	pp	0.0887	2.6856	1.7045	333.3	218.0	99.8	23S	122W
2188	Dec 04	00:15:39	250	60	2336	138	T+	pp	0.1394	2.6448	1.5602	369.0	229.6	98.9	22N	5W
2189	May 29	23:34:01	251	60	2342	143	P	a-	-0.6505	1.6375	0.6909	288.9	164.1	-	22S	7E
2189	Nov 22	23:54:07	252	61	2348	148	P	t-	0.8349	1.3765	0.2764	321.8	125.1	-	21N	1W
2190	Apr 20	08:03:24	253	61	2353	115	N	-a	1.2034	0.6398	-0.3401	208.4	-	-	11S	120W
2190	May 19	16:35:25	253	61	2354	153	N	a-	-1.3715	0.3184	-0.6356	147.9	-	-	21S	111E
2190	Oct 13	10:43:57	254	61	2359	120	N	-h	-1.3480	0.3980	-0.6284	177.0	-	-	7N	163W
2190	Nov 12	01:00:51	254	61	2360	158	N	h-	1.4894	0.1574	-0.9066	118.0	-	-	19N	19W
2191	Apr 09	18:42:01	255	61	2365	125	P	-a	0.5107	1.9399	0.9022	335.0	194.9	-	7S	81E
2191	Oct 02	22:45:48	255	62	2371	130	P	-a	-0.5729	1.7926	0.8206	302.7	177.4	-	3N	17E
2192	Mar 28	21:56:24	256	62	2377	135	T-	pp	-0.2202	2.4967	1.4120	371.2	228.8	91.6	4S	33E
2192	Sep 21	15:02:17	257	62	2383	140	T+	p-	0.1453	2.5668	1.6154	316.6	209.1	94.4	0S	134E
2193	Mar 17	21:34:31	258	63	2389	145	P	t-	-0.9274	1.1996	0.1139	303.1	81.6	-	0N	39E

2193 Sep 11	06:57:00	259	63	2395	150	P	a-	0.8828	1.2257	0.2505	270.5	108.1	-	4S	104W
2194 Feb 05	11:34:57	260	63	2400	117	N	-a	1.2339	0.6028	-0.4145	208.6	-	-	17N	169W
2194 Aug 02	05:18:43	260	63	2406	122	N	-t	-1.0540	0.9479	-0.0993	269.7	-	-	19S	77W
2195 Jan 26	00:58:49	261	64	2412	127	P	-a	0.5140	1.9028	0.9269	303.8	182.7	-	19N	10W
2195 Jul 22	06:49:10	262	64	2418	132	T	pt	-0.3087	2.3270	1.2568	367.8	224.6	77.4	20S	99W
2196 Jan 15	16:41:55	263	64	2424	137	T-	p-	-0.1537	2.5641	1.5877	320.4	209.1	93.1	21N	113E
2196 Jul 10	08:26:05	264	64	2430	142	P	t-	0.4577	2.0407	0.9960	347.4	205.8	-	22S	124W
2197 Jan 04	06:04:04	265	65	2436	147	P	a-	-0.8601	1.2895	0.2704	283.9	114.1	-	22N	89W
2197 May 31	07:36:03	265	65	2441	114	N	-a	-1.3955	0.2817	-0.6872	142.4	-	-	23S	113W
2197 Jun 29	16:22:51	266	65	2442	152	N	a-	1.1911	0.6680	-0.3232	217.9	-	-	22S	116E
2197 Nov 24	19:17:16	266	65	2447	119	N	-t	1.3723	0.3870	-0.7061	187.1	-	-	22N	68E
2198 May 20	23:50:32	267	65	2453	124	P	-a	-0.6437	1.6492	0.7041	288.5	164.8	-	21S	3E
2198 Nov 13	18:34:27	268	66	2459	129	P	-t	0.6945	1.6306	0.5377	337.8	166.7	-	19N	78E
2199 May 10	16:25:22	269	66	2465	134	T+	pp	0.0792	2.6951	1.7297	324.9	214.1	98.8	18S	114E
2199 Nov 02	21:27:11	270	66	2471	139	T-	pp	-0.0339	2.8187	1.7731	355.0	226.1	102.7	15N	35E
2200 Apr 30	04:44:34	271	66	2477	144	P	t-	0.8550	1.2987	0.2798	291.2	118.6	-	14S	70W
2200 Oct 23	07:44:44	272	67	2483	149	P	a-	-0.7411	1.4917	0.5045	290.5	147.8	-	11N	119W

23RD CENTURY CE

In the 23rd century CE the total number of lunar eclipses will be 252 lunar eclipses: 94 penumbral lunar eclipses, 97 partial lunar eclipses, 61 total lunar eclipses (50 central total lunar eclipses, 11 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
	ECLIPSE														
2201 Mar 20	16:55:03	272	67	2488	116	N	-t	-1.2929	0.5323	-0.5602	217.9	-	-	1S	109E
2201 Sep 13	15:03:16	273	67	2494	121	N	-a	1.1598	0.7059	-0.2464	210.8	-	-	3S	134E
2201 Oct 12	23:14:06	273	67	2495	159	N	a-	-1.4002	0.2670	-0.6896	134.9	-	-	6N	10E

2202 Mar 09	16:51:36	274	67	2500	126	P	-t	-0.5824	1.8288	0.7505	343.7	187.8	-	4N	111E
2202 Sep 03	06:05:57	275	68	2506	131	T	-a	0.4623	2.0031	1.0163	319.6	194.9	19.6	7S	91W
2203 Feb 26	22:20:38	276	68	2512	136	T+	p-	0.1500	2.5964	1.5692	344.0	219.5	96.1	9N	29E
2203 Aug 23	15:15:11	277	68	2518	141	T	pp	-0.3039	2.3203	1.2806	352.3	218.6	78.1	12S	133E
2204 Feb 16	10:41:26	278	68	2524	146	P	a-	0.8286	1.3276	0.3475	274.6	123.7	-	13N	156W
2204 Aug 11	17:37:23	279	69	2530	151	N	t-	-1.0820	0.9088	-0.1627	272.7	-	-	16S	98E
2205 Jan 06	15:34:56	279	69	2535	118	N	-a	-1.2080	0.6341	-0.3511	204.8	-	-	21N	129E
2205 Feb 05	02:23:29	280	69	2536	156	N	a-	1.4700	0.1458	-0.8244	101.2	-	-	18N	31W
2205 Jul 02	05:29:54	280	69	2541	123	P	-t	0.9714	1.0912	0.0602	279.8	58.0	-	22S	80W
2205 Dec 27	03:28:47	281	70	2547	128	P	-a	-0.5666	1.8364	0.8008	323.9	183.4	-	23N	51W
2206 Jun 21	15:28:26	282	70	2553	133	T+	pp	0.1626	2.5480	1.5710	330.6	215.5	95.4	23S	130E
2206 Dec 16	08:19:07	283	70	2559	138	T+	pp	0.1275	2.6685	1.5803	370.4	230.3	99.8	23N	125W
2207 Jun 11	07:07:39	284	70	2565	143	P	a-	-0.5812	1.7635	0.8193	294.6	174.8	-	24S	106W
2207 Dec 05	07:45:23	285	71	2571	148	P	t-	0.8170	1.4102	0.3084	324.4	131.4	-	23N	118W
2208 May 01	15:49:07	286	71	2576	115	N	-a	1.2584	0.5390	-0.4409	193.7	-	-	14S	124E
2208 May 31	00:10:35	286	71	2577	153	N	a-	-1.3103	0.4306	-0.5233	170.5	-	-	23S	2W
2208 Oct 24	18:36:04	287	71	2582	120	N	-h	-1.3789	0.3411	-0.6851	164.2	-	-	11N	79E
2208 Nov 23	09:01:57	287	71	2583	158	N	h-	1.4660	0.2003	-0.8634	132.3	-	-	22N	138W
2209 Apr 21	02:12:20	288	71	2588	125	P	-h	0.5617	1.8463	0.8086	331.8	188.2	-	11S	32W
2209 Oct 14	06:49:53	288	72	2594	130	P	-a	-0.6120	1.7213	0.7487	298.7	171.1	-	7N	104W
2210 Apr 10	05:13:49	289	72	2600	135	T-	pp	-0.1736	2.5812	1.4986	372.8	231.4	97.3	8S	77W
2210 Oct 03	23:03:49	290	72	2606	140	T+	p-	0.0988	2.6538	1.6994	317.7	210.2	96.8	4N	12E
2211 Mar 30	05:02:58	291	72	2612	145	P	t-	-0.8883	1.2689	0.1881	308.5	103.6	-	4S	74W
2211 Sep 23	14:39:32	292	73	2618	150	P	a-	0.8314	1.3226	0.3422	279.0	125.0	-	1N	139E
2212 Feb 17	20:03:18	293	73	2623	117	N	-a	1.2416	0.5863	-0.4264	205.3	-	-	13N	64E
2212 Mar 18	09:06:43	293	73	2624	155	N	a-	-1.5477	0.0364	-0.9995	55.7	-	-	0S	134W
2212 Aug 13	12:02:10	294	73	2629	122	N	-t	-1.1349	0.8015	-0.2499	252.7	-	-	15S	178W
2213 Feb 06	09:44:33	295	74	2635	127	P	-a	0.5218	1.8872	0.9137	302.7	181.7	-	16N	141W
2213 Aug 02	13:16:19	296	74	2641	132	T	-t	-0.3946	2.1698	1.0987	363.2	216.8	50.6	18S	164E
2214 Jan 27	01:30:46	297	74	2647	137	T-	p-	-0.1479	2.5748	1.5979	321.0	209.5	93.6	18N	18W
2214 Jul 22	15:06:54	298	74	2653	142	T	t-	0.3734	2.1942	1.1519	351.5	214.2	60.4	20S	136E
2215 Jan 16	14:40:00	299	75	2659	147	P	a-	-0.8578	1.2951	0.2733	285.3	115.0	-	20N	143E
2215 Jun 12	14:59:57	299	75	2664	114	N	-a	-1.4595	0.1623	-0.8024	108.9	-	-	25S	136E
2215 Jul 11	23:30:23	299	75	2665	152	N	a-	1.1114	0.8125	-0.1753	235.9	-	-	21S	10E
2215 Dec 07	03:12:05	300	75	2670	119	N	-t	1.3892	0.3578	-0.7388	180.8	-	-	24N	49W
2216 Jun 01	07:27:36	301	75	2676	124	P	-a	-0.7097	1.5271	0.5839	281.7	153.0	-	23S	111W
2216 Nov 25	02:22:56	302	76	2682	129	P	-t	0.7144	1.5946	0.5005	335.2	161.6	-	21N	38W
2217 May 22	00:01:35	303	76	2688	134	T+	pp	0.0167	2.8100	1.8444	326.1	215.2	100.4	20S	0E
2217 Nov 14	05:29:02	304	76	2694	139	T-	pp	-0.0100	2.8624	1.8172	354.0	225.5	102.6	18N	85W
2218 May 11	12:05:34	305	77	2700	144	P	t-	0.7981	1.4036	0.3839	300.1	137.2	-	17S	179E

2218	Nov 03	16:00:25	306	77	2706	149	P	a-	-0.7113	1.5465	0.5590	293.1	153.9	-	14N	117E
2219	Apr 01	00:18:14	307	77	2711	116	N	-t	-1.3322	0.4588	-0.6308	203.6	-	-	5S	3W
2219	Sep 24	22:55:51	308	77	2717	121	N	-a	1.2117	0.6126	-0.3435	198.6	-	-	2N	15E
2219	Oct 24	07:29:33	308	77	2718	159	N	a-	-1.3663	0.3304	-0.6288	149.3	-	-	10N	115W
2220	Mar 20	00:32:40	309	78	2723	126	P	-t	-0.6115	1.7728	0.6998	339.5	182.6	-	0S	5W
2220	Sep 13	13:36:52	310	78	2729	131	P	-a	0.5229	1.8948	0.9023	316.7	188.0	-	3S	156E
2221	Mar 09	06:32:19	311	78	2735	136	T+	p-	0.1290	2.6321	1.6106	342.8	219.7	97.5	5N	94W
2221	Sep 02	22:13:42	312	78	2741	141	T-	pp	-0.2348	2.4498	1.4048	356.8	223.5	89.7	8S	28E
2222	Feb 26	19:17:36	313	79	2747	146	P	a-	0.8137	1.3531	0.3767	275.7	128.0	-	9N	75E
2222	Aug 23	00:12:08	314	79	2753	151	Nx	t-	-1.0043	1.0526	-0.0214	289.5	-	-	12S	1W
2223	Jan 18	00:22:31	314	79	2758	118	N	-a	-1.2145	0.6229	-0.3639	203.7	-	-	20N	2W
2223	Feb 16	11:07:59	315	79	2759	156	N	a-	1.4617	0.1606	-0.8087	106.1	-	-	14N	162W
2223	Jul 13	12:17:52	315	80	2764	123	N	-t	1.0486	0.9478	-0.0797	263.7	-	-	21S	178E
2224	Jan 07	11:58:46	316	80	2770	128	P	-a	-0.5732	1.8260	0.7870	324.6	182.8	-	22N	177W
2224	Jul 01	22:43:13	317	80	2776	133	T+	-p	0.2379	2.4081	1.4347	327.1	211.8	87.7	23S	22E
2224	Dec 26	16:25:17	318	80	2782	138	T+	pp	0.1183	2.6869	1.5956	371.6	230.9	100.5	23N	115E
2225	Jun 21	14:38:56	319	81	2788	143	P	a-	-0.5097	1.8936	0.9512	299.8	184.0	-	24S	142E
2225	Dec 15	15:41:08	320	81	2794	148	P	t-	0.8027	1.4370	0.3344	326.4	136.2	-	24N	125E
2226	May 12	23:26:44	321	81	2799	115	N	-a	1.3191	0.4277	-0.5526	174.9	-	-	17S	9E
2226	Jun 11	07:41:29	321	81	2800	153	N	a-	-1.2460	0.5488	-0.4056	190.7	-	-	24S	114W
2226	Nov 05	02:38:02	322	82	2805	120	N	-h	-1.4025	0.2978	-0.7282	153.6	-	-	14N	42W
2226	Dec 04	17:10:19	322	82	2806	158	N	h-	1.4479	0.2330	-0.8300	141.9	-	-	24N	101E
2227	May 02	09:32:27	323	82	2811	125	P	-t	0.6204	1.7387	0.7008	327.4	179.0	-	15S	142W
2227	Oct 25	15:02:23	324	82	2817	130	P	-a	-0.6445	1.6621	0.6886	295.2	165.4	-	11N	132E
2228	Apr 20	12:20:31	325	82	2823	135	T-	pp	-0.1184	2.6813	1.6008	374.1	233.6	102.1	12S	176E
2228	Oct 14	07:13:09	326	83	2829	140	T+	pp	0.0586	2.7291	1.7714	318.6	210.8	98.0	8N	110W
2229	Apr 09	12:21:26	327	83	2835	145	P	t-	-0.8403	1.3544	0.2786	314.7	124.2	-	8S	176E
2229	Oct 03	22:29:30	328	83	2841	150	P	a-	0.7866	1.4077	0.4217	286.1	137.4	-	5N	21E
2230	Feb 28	04:27:12	329	84	2846	117	N	-a	1.2538	0.5613	-0.4462	200.6	-	-	9N	62W
2230	Mar 29	16:58:21	329	84	2847	155	N	a-	-1.5105	0.1014	-0.9282	92.1	-	-	5S	107E
2230	Aug 24	18:48:10	330	84	2852	122	N	-t	-1.2127	0.6610	-0.3949	233.5	-	-	12S	81E
2231	Feb 17	18:27:46	331	84	2858	127	P	-a	0.5321	1.8669	0.8961	301.4	180.3	-	13N	88E
2231	Aug 13	19:45:54	332	84	2864	132	P	-t	-0.4786	2.0163	0.9439	357.5	206.9	-	15S	66E
2232	Feb 07	10:17:44	333	85	2870	137	T-	p-	-0.1410	2.5876	1.6106	321.6	210.0	94.1	15N	150W
2232	Aug 01	21:49:49	334	85	2876	142	T	t-	0.2898	2.3465	1.3062	354.4	220.4	81.1	18S	36E
2233	Jan 26	23:15:03	335	85	2882	147	P	a-	-0.8553	1.3007	0.2768	286.7	116.0	-	18N	15E
2233	Jun 22	22:22:33	336	86	2887	114	Ne	-a	-1.5250	0.0404	-0.9209	54.8	-	-	25S	27E
2233	Jul 22	06:40:41	336	86	2888	152	N	a-	1.0329	0.9552	-0.0297	251.0	-	-	19S	97W
2233	Dec 17	11:10:38	337	86	2893	119	N	-t	1.4028	0.3343	-0.7652	175.4	-	-	25N	167W
2234	Jun 12	15:02:55	338	86	2899	124	P	-a	-0.7774	1.4022	0.4603	273.9	138.5	-	24S	136E

2234	Dec 06	10:17:26	339	86	2905	129	P	-t	0.7301	1.5662	0.4715	332.9	157.3	-	23N	155W
2235	Jun 02	07:32:47	340	87	2911	134	T-	pp	-0.0495	2.7500	1.7838	326.9	215.5	100.1	22S	112W
2235	Nov 25	13:38:15	341	87	2917	139	T+	pp	0.0086	2.8647	1.8200	352.9	224.9	102.4	21N	153E
2236	May 21	19:18:51	342	87	2923	144	P	t-	0.7352	1.5194	0.4987	309.2	154.2	-	20S	71E
2236	Nov 14	00:24:12	343	88	2929	149	P	a-	-0.6879	1.5896	0.6019	294.9	158.2	-	17N	8W
2237	Apr 11	07:30:44	344	88	2934	116	N	-t	-1.3796	0.3703	-0.7163	184.3	-	-	9S	111W
2237	May 10	23:45:33	344	88	2935	154	N	t-	1.5297	0.0864	-0.9831	90.2	-	-	16S	4E
2237	Oct 05	06:57:01	345	88	2940	121	N	-a	1.2564	0.5325	-0.4275	187.0	-	-	6N	106W
2237	Nov 03	15:53:39	345	88	2941	159	N	a-	-1.3394	0.3810	-0.5806	159.6	-	-	14N	119E
2238	Mar 31	08:05:24	346	88	2946	126	P	-t	-0.6477	1.7035	0.6361	334.4	175.6	-	5S	119W
2238	Sep 24	21:14:02	347	89	2952	131	P	-a	0.5775	1.7975	0.7992	313.8	180.6	-	1N	41E
2239	Mar 20	14:37:27	348	89	2958	136	T+	p-	0.1017	2.6792	1.6636	341.6	219.9	99.1	0N	144E
2239	Sep 14	05:17:33	349	89	2964	141	T-	pp	-0.1708	2.5702	1.5195	360.3	227.0	97.0	4S	79W
2240	Mar 09	03:46:50	350	90	2970	146	P	a-	0.7925	1.3899	0.4176	277.5	133.8	-	5N	52W
2240	Sep 02	06:52:16	351	90	2976	151	P	t-	-0.9305	1.1895	0.1126	303.6	81.8	-	9S	101W
2241	Jan 28	09:08:45	352	90	2981	118	N	-a	-1.2221	0.6096	-0.3784	202.2	-	-	17N	133W
2241	Feb 26	19:46:43	352	90	2982	156	N	a-	1.4489	0.1834	-0.7847	113.2	-	-	10N	68E
2241	Jul 23	19:08:09	353	90	2987	123	N	-t	1.1246	0.8070	-0.2177	246.0	-	-	19S	76E
2242	Jan 17	20:28:26	354	91	2993	128	P	-a	-0.5794	1.8159	0.7742	325.3	182.2	-	20N	57E
2242	Jul 13	05:59:11	355	91	2999	133	T	-p	0.3129	2.2688	1.2984	323.0	206.7	76.2	22S	87W
2243	Jan 07	00:33:44	356	91	3005	138	T+	pp	0.1116	2.7004	1.6069	372.6	231.4	101.0	23N	6W
2243	Jul 02	22:07:19	357	92	3011	143	T	a-	-0.4355	2.0293	1.0880	304.4	191.8	43.2	23S	31E
2243	Dec 26	23:42:16	358	92	3017	148	P	t-	0.7922	1.4563	0.3533	327.6	139.5	-	24N	6E
2244	May 23	06:56:59	359	92	3022	115	N	-a	1.3851	0.3070	-0.6741	150.3	-	-	19S	103W
2244	Jun 21	15:07:42	359	92	3023	153	N	a-	-1.1783	0.6735	-0.2820	209.1	-	-	25S	135E
2244	Nov 15	10:48:55	360	92	3028	120	N	-a	-1.4201	0.2651	-0.7604	144.9	-	-	17N	164W
2244	Dec 15	01:25:19	360	93	3029	158	N	a-	1.4341	0.2578	-0.8040	148.5	-	-	25N	21W
2245	May 12	16:43:42	361	93	3034	125	P	-t	0.6856	1.6193	0.5809	321.7	166.7	-	18S	110E
2245	Nov 04	23:23:16	362	93	3040	130	P	-a	-0.6708	1.6142	0.6399	292.1	160.4	-	15N	7E
2246	May 01	19:20:11	363	93	3046	135	T-	pp	-0.0575	2.7920	1.7137	375.0	235.2	105.2	15S	71E
2246	Oct 25	15:28:37	364	94	3052	140	T+	pp	0.0236	2.7950	1.8339	319.3	211.1	98.6	12N	125E
2247	Apr 20	19:34:23	365	94	3058	145	P	t-	-0.7870	1.4495	0.3790	321.0	142.4	-	12S	67E
2247	Oct 15	06:25:29	367	94	3064	150	P	a-	0.7471	1.4829	0.4912	292.3	147.1	-	9N	99W
2248	Mar 10	12:44:46	367	95	3069	117	N	-a	1.2717	0.5256	-0.4765	194.0	-	-	5N	173E
2248	Apr 09	00:42:27	368	95	3070	155	N	a-	-1.4663	0.1793	-0.8441	121.0	-	-	9S	9W
2248	Sep 04	01:38:57	369	95	3075	122	N	-t	-1.2858	0.5295	-0.5313	212.4	-	-	8S	23W
2248	Oct 03	15:52:01	369	95	3076	160	Nb	t-	1.5365	0.0613	-0.9833	73.4	-	-	5N	120E
2249	Feb 28	03:04:45	370	95	3081	127	P	-a	0.5480	1.8362	0.8685	299.6	178.2	-	9N	41W
2249	Aug 24	02:22:14	371	95	3087	132	P	-t	-0.5572	1.8728	0.7990	351.0	195.3	-	12S	33W
2250	Feb 17	18:58:32	372	96	3093	137	T-	p-	-0.1291	2.6094	1.6326	322.3	210.7	95.0	12N	80E

2250 Aug 13	04:39:38	373	96	3099	142	T+	pp	0.2108	2.4908	1.4520	356.1	224.5	92.9	15S	67W
2251 Feb 07	07:45:39	374	96	3105	147	P	a-	-0.8497	1.3118	0.2863	288.5	118.2	-	15N	112W
2251 Aug 02	13:53:15	375	97	3111	152	P	a-	0.9549	1.0971	0.1146	263.9	75.6	-	17S	155E
2251 Dec 28	19:12:50	376	97	3116	119	N	-t	1.4132	0.3162	-0.7854	171.2	-	-	25N	74E
2252 Jun 22	22:33:27	377	97	3122	124	P	-a	-0.8494	1.2697	0.3286	264.7	119.3	-	24S	24E
2252 Dec 16	18:18:40	378	98	3128	129	P	-t	0.7406	1.5468	0.4521	331.1	154.3	-	24N	86E
2253 Jun 12	14:57:11	379	98	3134	134	T-	-p	-0.1210	2.6195	1.6520	327.0	214.8	97.6	23S	137E
2253 Dec 05	21:55:59	380	98	3140	139	T+	pp	0.0213	2.8409	1.7973	351.7	224.2	102.0	22N	30E
2254 Jun 02	02:24:39	381	98	3146	144	P	t-	0.6670	1.6452	0.6232	318.0	169.5	-	21S	35W
2254 Nov 25	08:54:58	382	99	3152	149	P	a-	-0.6696	1.6231	0.6354	296.1	161.3	-	20N	135W
2255 Apr 22	14:36:06	383	99	3157	116	N	-t	-1.4324	0.2717	-0.8116	159.2	-	-	13S	142E
2255 May 22	06:33:14	384	99	3158	154	N	t-	1.4630	0.2083	-0.8603	138.8	-	-	19S	97W
2255 Oct 16	15:04:23	384	99	3163	121	N	-a	1.2959	0.4621	-0.5021	175.8	-	-	10N	132E
2255 Nov 15	00:24:35	385	99	3164	159	N	a-	-1.3181	0.4213	-0.5428	167.2	-	-	17N	8W
2256 Apr 10	15:31:03	386	100	3169	126	P	-t	-0.6905	1.6221	0.5606	328.2	166.5	-	9S	129E
2256 Oct 05	04:57:12	387	100	3175	131	P	-a	0.6264	1.7108	0.7064	311.0	173.0	-	5N	76W
2257 Mar 30	22:36:42	388	100	3181	136	T+	pp	0.0686	2.7368	1.7273	340.3	220.0	100.4	4S	24E
2257 Sep 24	12:27:34	389	101	3187	141	T-	pp	-0.1123	2.6803	1.6239	363.2	229.4	101.4	1N	173E
2258 Mar 20	12:10:19	390	101	3193	146	P	a-	0.7663	1.4358	0.4677	279.9	140.3	-	1N	179W
2258 Sep 13	13:39:53	391	101	3199	151	P	t-	-0.8623	1.3160	0.2362	315.2	116.4	-	4S	156E
2259 Feb 08	17:51:41	392	101	3204	118	N	-a	-1.2321	0.5917	-0.3971	200.0	-	-	14N	97E
2259 Mar 10	04:19:53	392	102	3205	156	N	a-	1.4323	0.2132	-0.7536	121.9	-	-	6N	60W
2259 Aug 04	02:01:59	393	102	3210	123	N	-t	1.1982	0.6707	-0.3516	226.4	-	-	16S	27W
2259 Sep 02	14:47:57	393	102	3211	161	Nb	t-	-1.5669	0.0100	-1.0434	30.4	-	-	9S	140E
2260 Jan 29	04:55:22	394	102	3216	128	P	-a	-0.5872	1.8027	0.7589	325.8	181.4	-	18N	69W
2260 Jul 23	13:17:09	395	102	3222	133	T	-p	0.3868	2.1322	1.1642	318.2	200.5	59.0	19S	164E
2261 Jan 17	08:40:06	396	103	3228	138	T+	pp	0.1036	2.7157	1.6208	373.5	232.0	101.5	21N	126W
2261 Jul 13	05:36:18	398	103	3234	143	T	p-	-0.3617	2.1644	1.2236	308.3	198.1	66.0	22S	81W
2262 Jan 06	07:45:00	399	103	3240	148	P	t-	0.7832	1.4726	0.3702	328.4	142.3	-	23N	113W
2262 Jun 03	14:20:48	400	104	3245	115	N	-a	1.4556	0.1784	-0.8039	116.4	-	-	21S	146E
2262 Jul 02	22:31:30	400	104	3246	153	N	a-	-1.1090	0.8015	-0.1555	225.8	-	-	24S	25E
2262 Nov 26	19:06:56	401	104	3251	120	N	-a	-1.4328	0.2416	-0.7832	138.2	-	-	20N	72E
2262 Dec 26	09:43:58	401	104	3252	158	N	a-	1.4227	0.2779	-0.7821	153.4	-	-	25N	144W
2263 May 23	23:46:24	402	104	3257	125	P	-t	0.7568	1.4891	0.4499	314.3	150.2	-	20S	5E
2263 Nov 16	07:52:13	403	105	3263	130	P	-a	-0.6909	1.5778	0.6027	289.6	156.3	-	18N	120W
2264 May 12	02:08:52	404	105	3269	135	T+	pp	0.0121	2.8742	1.7979	375.3	235.8	106.2	18S	31W
2264 Nov 04	23:52:49	405	105	3275	140	T-	pp	-0.0039	2.8329	1.8684	319.9	211.2	98.6	16N	1W
2265 May 01	02:38:34	406	105	3281	145	P	t-	-0.7261	1.5587	0.4934	327.5	159.3	-	16S	39W
2265 Oct 25	14:28:58	408	106	3287	150	P	a-	0.7146	1.5455	0.5480	297.4	154.4	-	13N	140E
2266 Mar 21	20:56:21	409	106	3292	117	N	-a	1.2951	0.4800	-0.5166	185.5	-	-	1N	50E

2266	Apr 20	08:20:16	409	106	3293	155	N	a-	-1.4163	0.2678	-0.7492	146.0	-	-	13S	124W
2266	Sep 15	08:35:39	410	106	3298	122	N	-t	-1.3530	0.4087	-0.6572	189.4	-	-	4S	128W
2266	Oct 14	23:22:59	410	106	3299	160	N	t-	1.4969	0.1371	-0.9137	109.6	-	-	10N	7E
2267	Mar 11	11:37:13	411	107	3304	127	P	-a	0.5679	1.7980	0.8336	297.5	175.6	-	4N	170W
2267	Sep 04	09:02:59	412	107	3310	132	P	-t	-0.6322	1.7360	0.6604	343.7	181.7	-	8S	134W
2268	Feb 29	03:35:26	413	107	3316	137	T-	p-	-0.1142	2.6365	1.6602	323.0	211.4	96.0	8N	49W
2268	Aug 23	11:34:50	414	108	3322	142	T+	pp	0.1351	2.6290	1.5915	356.8	226.9	99.8	11S	171W
2269	Feb 17	16:11:17	415	108	3328	147	P	a-	-0.8406	1.3290	0.3023	290.8	121.5	-	11N	122E
2269	Aug 12	21:11:37	417	108	3334	152	P	a-	0.8806	1.2325	0.2517	274.6	109.6	-	14S	45E
2270	Jan 08	03:16:21	418	109	3339	119	N	-t	1.4225	0.2999	-0.8031	167.2	-	-	23N	46W
2270	Jul 04	06:03:42	419	109	3345	124	P	-a	-0.9215	1.1374	0.1965	254.3	94.1	-	24S	88W
2270	Dec 28	02:22:42	420	109	3351	129	P	-t	0.7494	1.5304	0.4364	329.4	151.7	-	24N	34W
2271	Jun 23	22:18:46	421	110	3357	134	T-	p-	-0.1944	2.4858	1.5166	326.5	212.9	92.3	24S	28E
2271	Dec 17	06:18:50	422	110	3363	139	T+	pp	0.0303	2.8235	1.7815	350.5	223.6	101.7	23N	94W
2272	Jun 12	09:23:35	423	110	3369	144	P	t-	0.5938	1.7804	0.7565	326.6	183.3	-	23S	139W
2272	Dec 05	17:32:31	425	110	3375	149	P	a-	-0.6565	1.6471	0.6597	296.8	163.4	-	22N	96E
2273	May 02	21:31:51	425	111	3380	116	N	-t	-1.4926	0.1598	-0.9205	123.2	-	-	17S	38E
2273	Jun 01	13:13:38	426	111	3381	154	N	t-	1.3903	0.3413	-0.7267	175.8	-	-	21S	163E
2273	Oct 26	23:19:48	427	111	3386	121	N	-a	1.3289	0.4037	-0.5647	165.6	-	-	14N	7E
2273	Nov 25	09:01:54	427	111	3387	159	N	a-	-1.3020	0.4520	-0.5144	172.8	-	-	19N	137W
2274	Apr 21	22:48:59	428	111	3392	126	P	-t	-0.7402	1.5280	0.4723	320.8	154.6	-	13S	19E
2274	Oct 16	12:48:08	429	112	3398	131	P	-a	0.6684	1.6369	0.6264	308.4	165.5	-	10N	166E
2275	Apr 11	06:28:07	430	112	3404	136	T+	pp	0.0283	2.8078	1.8044	339.0	220.0	101.3	8S	95W
2275	Oct 05	19:44:06	431	112	3410	141	T-	pp	-0.0599	2.7794	1.7172	365.4	230.8	103.8	5N	63E
2276	Mar 30	20:26:06	433	113	3416	146	P	a-	0.7334	1.4941	0.5302	282.9	147.8	-	3S	57E
2276	Sep 23	20:35:24	434	113	3422	151	P	t-	-0.8004	1.4311	0.3482	324.7	138.9	-	0S	51E
2277	Feb 19	02:29:14	435	113	3427	118	N	-a	-1.2460	0.5662	-0.4229	196.6	-	-	10N	32W
2277	Mar 20	12:44:40	435	113	3428	156	N	a-	1.4094	0.2544	-0.7108	132.7	-	-	1N	173E
2277	Aug 14	09:01:19	436	114	3433	123	N	-t	1.2679	0.5419	-0.4785	205.3	-	-	13S	133W
2277	Sep 12	21:49:42	436	114	3434	161	N	t-	-1.4999	0.1329	-0.9206	109.2	-	-	5S	34E
2278	Feb 08	13:19:09	437	114	3439	128	P	-a	-0.5966	1.7863	0.7409	326.1	180.3	-	14N	165E
2278	Aug 03	20:37:40	438	114	3445	133	T	-a	0.4592	1.9983	1.0321	312.8	193.1	27.1	17S	54E
2279	Jan 28	16:45:41	439	115	3451	138	T+	pp	0.0954	2.7312	1.6355	374.3	232.5	102.1	18N	114E
2279	Jul 24	13:05:07	441	115	3457	143	T	p-	-0.2877	2.3002	1.3594	311.5	203.1	79.9	20S	167E
2280	Jan 17	15:49:31	442	115	3463	148	P	t-	0.7749	1.4871	0.3861	329.1	144.8	-	21N	127E
2280	Jun 13	21:38:08	443	116	3468	115	Ne	-a	1.5304	0.0420	-0.9420	57.4	-	-	22S	38E
2280	Jul 13	05:52:35	443	116	3469	153	N	a-	-1.0377	0.9335	-0.0259	241.0	-	-	23S	85W
2280	Dec 07	03:32:38	444	116	3474	120	N	-a	-1.4403	0.2273	-0.7964	133.8	-	-	21N	53W
2281	Jan 05	18:06:45	444	116	3475	158	N	a-	1.4137	0.2932	-0.7643	156.8	-	-	24N	91E
2281	Jun 03	06:42:42	445	116	3480	125	P	-t	0.8323	1.3512	0.3109	305.2	127.9	-	22S	99W

2281	Nov 26	16:27:11	446	116	3486	130	P	-a	-0.7065	1.5494	0.5737	287.6	153.0	-	20N	112E
2282	May 23	08:52:42	448	117	3492	135	T+	pp	0.0856	2.7384	1.6640	374.7	235.1	104.4	21S	132W
2282	Nov 16	08:23:04	449	117	3498	140	T-	pp	-0.0261	2.7939	1.8261	320.4	211.2	98.4	19N	128W
2283	May 12	09:37:19	450	117	3504	145	P	t-	-0.6596	1.6780	0.6178	333.8	174.4	-	19S	144W
2283	Nov 05	22:38:42	451	118	3510	150	P	a-	0.6877	1.5977	0.5945	301.7	160.1	-	16N	18E
2284	Apr 01	05:01:10	452	118	3515	117	N	-a	1.3247	0.4228	-0.5681	174.3	-	-	4S	72W
2284	Apr 30	15:51:40	452	118	3516	155	N	a-	-1.3601	0.3679	-0.6430	168.8	-	-	16S	123E
2284	Sep 25	15:39:32	453	118	3521	122	N	-t	-1.4139	0.2995	-0.7715	164.3	-	-	0N	126E
2284	Oct 25	07:01:33	454	118	3522	160	N	t-	1.4633	0.2017	-0.8552	132.7	-	-	14N	108W
2285	Mar 21	20:01:07	455	119	3527	127	P	-a	0.5954	1.7458	0.7847	294.6	171.7	-	0S	64E
2285	Sep 14	15:53:25	456	119	3533	132	P	-t	-0.6997	1.6132	0.5357	336.2	166.9	-	4S	123E
2286	Mar 11	12:04:37	457	119	3539	137	T-	pp	-0.0928	2.6753	1.6997	323.8	212.3	97.3	4N	177W
2286	Sep 03	18:37:54	458	120	3545	142	T+	pp	0.0648	2.7576	1.7209	356.7	227.8	103.2	7S	82E
2287	Mar 01	00:30:01	460	120	3551	147	P	a-	-0.8265	1.3554	0.3279	293.7	126.4	-	7N	3W
2287	Aug 24	04:35:07	461	120	3557	152	P	a-	0.8094	1.3624	0.3829	283.5	132.2	-	10S	66W
2288	Jan 19	11:19:31	462	121	3562	119	N	-t	1.4317	0.2832	-0.8203	162.8	-	-	22N	165W
2288	Jul 14	13:31:30	463	121	3568	124	P	-a	-0.9955	1.0018	0.0604	242.4	53.1	-	22S	161E
2288	Aug 12	20:15:28	463	121	3569	162	Nb	a-	1.4946	0.0877	-0.8570	78.6	-	-	13S	59E
2289	Jan 07	10:30:56	464	121	3574	129	P	-t	0.7553	1.5187	0.4263	327.9	150.0	-	23N	154W
2289	Jul 04	05:36:25	465	122	3580	134	T-	-p	-0.2703	2.3476	1.3760	325.2	209.7	83.3	23S	81W
2289	Dec 27	14:46:23	467	122	3586	139	T+	pp	0.0364	2.8113	1.7713	349.2	222.9	101.4	23N	141E
2290	Jun 23	16:17:39	468	122	3592	144	P	t-	0.5172	1.9222	0.8960	334.5	195.3	-	23S	118E
2290	Dec 17	02:15:35	469	123	3598	149	P	a-	-0.6473	1.6636	0.6768	297.0	164.7	-	23N	33W
2291	May 14	04:20:24	470	123	3603	116	Ne	-t	-1.5581	0.0379	-1.0392	60.6	-	-	20S	64W
2291	Jun 12	19:47:40	470	123	3604	154	N	t-	1.3123	0.4841	-0.5835	206.8	-	-	22S	65E
2291	Nov 07	07:41:43	471	123	3609	121	N	-a	1.3565	0.3553	-0.6174	156.5	-	-	18N	118W
2291	Dec 06	17:45:09	472	123	3610	159	N	a-	-1.2909	0.4735	-0.4950	176.6	-	-	21N	93E
2292	May 02	06:00:51	473	124	3615	126	P	-t	-0.7956	1.4233	0.3734	312.1	139.2	-	16S	89W
2292	Oct 26	20:45:26	474	124	3621	131	P	-a	0.7042	1.5743	0.5576	306.1	158.4	-	13N	46E
2293	Apr 21	14:13:28	475	124	3627	136	T-	pp	-0.0180	2.8237	1.8263	337.3	219.5	101.4	12S	148E
2293	Oct 16	03:08:17	476	125	3633	141	T-	pp	-0.0144	2.8659	1.7979	367.2	231.6	104.6	9N	49W
2294	Apr 11	04:36:13	478	125	3639	146	P	a-	0.6956	1.5614	0.6015	286.2	155.5	-	8S	67W
2294	Oct 05	03:38:22	479	125	3645	151	P	t-	-0.7443	1.5357	0.4498	332.6	155.4	-	4N	55W
2295	Mar 02	11:01:07	480	126	3650	118	N	-a	-1.2643	0.5329	-0.4564	191.7	-	-	6N	161W
2295	Mar 31	21:02:52	480	126	3651	156	N	a-	1.3817	0.3046	-0.6592	144.7	-	-	3S	48E
2295	Aug 25	16:07:03	481	126	3656	123	N	-t	1.3329	0.4218	-0.5971	182.6	-	-	9S	121E
2295	Sep 24	05:00:03	481	126	3657	161	N	t-	-1.4388	0.2451	-0.8085	146.4	-	-	1S	75W
2296	Feb 19	21:35:59	482	126	3662	128	P	-a	-0.6112	1.7599	0.7134	325.7	178.2	-	11N	41E
2296	Aug 14	04:03:00	484	127	3668	133	P	-a	0.5283	1.8710	0.9060	307.0	184.6	-	14S	58W
2297	Feb 08	00:46:04	485	127	3674	138	T+	pp	0.0832	2.7536	1.6579	375.0	233.1	102.8	15N	6W

2297 Aug 03	20:37:09	486	127	3680	143	T-	p-	-0.2162	2.4318	1.4901	314.0	206.8	88.9	17S	54E
2298 Jan 27	23:51:15	487	128	3686	148	P	t-	0.7640	1.5060	0.4071	329.9	148.0	-	19N	7E
2298 Jul 24	13:14:15	489	128	3692	153	P	a-	-0.9674	1.0640	0.1018	254.6	70.0	-	21S	165E
2298 Dec 18	12:03:41	490	128	3697	120	N	-a	-1.4440	0.2196	-0.8025	131.2	-	-	22N	180W
2299 Jan 17	02:30:29	490	128	3698	158	N	a-	1.4049	0.3077	-0.7467	159.9	-	-	22N	33W
2299 Jun 14	13:31:01	491	129	3703	125	P	-t	0.9132	1.2036	0.1618	293.8	94.6	-	22S	160E
2299 Dec 08	01:09:07	492	129	3709	130	P	-a	-0.7168	1.5307	0.5547	286.1	150.7	-	22N	17W
2300 Jun 03	15:28:05	494	129	3715	135	T+	pp	0.1655	2.5910	1.5182	373.2	232.9	99.0	22S	130E
2300 Nov 27	17:00:33	495	130	3721	140	T-	-p	-0.0422	2.7659	1.7950	320.9	211.2	98.1	21N	104E

24TH CENTURY CE

In the 24th century CE the total number of lunar eclipses will be 253 lunar eclipses: 95 penumbral lunar eclipses, 98 partial lunar eclipses, 60 total lunar eclipses (48 central total lunar eclipses, 12 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
	ECLIPSE														

2301 May 23	16:29:16	496	130	3727	145	P	t-	-0.5869	1.8090	0.7537	339.7	187.8	-	21S	114E
2301 Nov 17	06:56:02	497	130	3733	150	P	a-	0.6679	1.6369	0.6283	305.2	164.1	-	19N	106W
2302 Apr 13	12:59:54	499	131	3738	117	N	-a	1.3599	0.3554	-0.6299	160.2	-	-	8S	168E
2302 May 12	23:17:52	499	131	3739	155	N	a-	-1.2986	0.4777	-0.5271	189.5	-	-	19S	11E
2302 Oct 07	22:49:34	500	131	3744	122	N	-t	-1.4691	0.2008	-0.8753	136.2	-	-	4N	17E
2302 Nov 06	14:46:23	500	131	3745	160	N	t-	1.4353	0.2562	-0.8066	149.4	-	-	17N	136E
2303 Apr 03	04:19:40	501	131	3750	127	P	-a	0.6276	1.6851	0.7273	291.3	166.8	-	4S	62W
2303 Sep 26	22:50:54	502	132	3756	132	P	-t	-0.7616	1.5007	0.4211	328.5	150.6	-	1N	18E
2304 Mar 22	20:26:41	504	132	3762	137	T-	pp	-0.0661	2.7240	1.7492	324.7	213.2	98.4	1S	57E
2304 Sep 15	01:48:58	505	132	3768	142	T+	pp	0.0003	2.8756	1.8395	355.8	227.6	103.9	3S	26W
2305 Mar 12	08:41:34	506	133	3774	147	P	a-	-0.8072	1.3910	0.3630	297.3	132.7	-	3N	126W

2305 Sep 04	12:05:49	508	133	3780	152	P	a-	0.7436	1.4829	0.5042	290.7	148.5	-	7S	180W
2306 Jan 30	19:20:02	509	133	3785	119	N	-t	1.4428	0.2628	-0.8405	157.3	-	-	19N	76E
2306 Mar 01	13:42:51	509	133	3786	157	N	t-	-1.5675	0.0241	-1.0594	47.8	-	-	7N	159E
2306 Jul 26	21:01:27	510	134	3791	124	N	-a	-1.0676	0.8701	-0.0725	229.3	-	-	20S	49E
2306 Aug 25	03:53:20	510	134	3792	162	N	a-	1.4297	0.2074	-0.7382	119.4	-	-	10S	56W
2307 Jan 19	18:39:13	511	134	3797	129	P	-t	0.7617	1.5059	0.4156	326.2	148.1	-	21N	85E
2307 Jul 16	12:51:47	513	134	3803	134	T	-a	-0.3476	2.2074	1.2329	323.2	204.9	69.1	22S	171E
2308 Jan 08	23:16:24	514	135	3809	139	T+	pp	0.0413	2.8010	1.7637	347.9	222.3	101.1	22N	14E
2308 Jul 04	23:07:47	515	135	3815	144	T	t-	0.4377	2.0694	1.0404	341.7	205.6	32.0	22S	16E
2308 Dec 28	11:01:32	516	135	3821	149	P	a-	-0.6401	1.6763	0.6906	297.0	165.7	-	23N	163W
2309 Jun 24	02:17:41	518	136	3827	154	N	t-	1.2308	0.6338	-0.4339	233.5	-	-	22S	32W
2309 Nov 18	16:10:55	519	136	3832	121	N	-a	1.3783	0.3174	-0.6594	148.8	-	-	21N	115E
2309 Dec 18	02:32:40	519	136	3833	159	N	a-	-1.2831	0.4888	-0.4815	179.3	-	-	22N	37W
2310 May 14	13:06:25	520	136	3838	126	P	-t	-0.8566	1.3085	0.2643	301.9	118.7	-	19S	165E
2310 Nov 08	04:49:16	521	137	3844	131	P	-a	0.7340	1.5227	0.5001	304.3	151.8	-	17N	74W
2311 May 03	21:52:06	523	137	3850	136	T-	pp	-0.0706	2.7241	1.7326	335.4	218.5	100.3	16S	33E
2311 Oct 28	10:40:16	524	137	3856	141	T+	pp	0.0241	2.8508	1.7772	368.7	231.9	104.5	13N	162W
2312 Apr 22	12:37:08	525	138	3862	146	P	a-	0.6499	1.6433	0.6874	290.1	163.8	-	12S	173E
2312 Oct 16	10:51:22	527	138	3868	151	P	t-	-0.6960	1.6258	0.5369	338.7	167.4	-	8N	164W
2313 Mar 13	19:25:44	528	138	3873	118	N	-a	-1.2881	0.4891	-0.5001	184.9	-	-	2N	73E
2313 Apr 12	05:12:29	528	138	3874	156	N	a-	1.3474	0.3668	-0.5955	158.1	-	-	7S	75W
2313 Sep 05	23:20:22	529	139	3879	123	N	-t	1.3926	0.3118	-0.7061	158.0	-	-	5S	11E
2313 Oct 05	12:20:13	529	139	3880	161	N	t-	-1.3843	0.3452	-0.7087	171.7	-	-	3N	175E
2314 Mar 03	05:46:47	530	139	3885	128	P	-a	-0.6302	1.7255	0.6784	324.9	175.3	-	7N	82W
2314 Aug 26	11:33:38	532	139	3891	133	P	-a	0.5936	1.7508	0.7865	300.8	175.1	-	10S	171W
2315 Feb 20	08:42:48	533	140	3897	138	T+	pp	0.0684	2.7805	1.6854	375.6	233.7	103.6	11N	125W
2315 Aug 16	04:10:27	534	140	3903	143	T-	p-	-0.1459	2.5616	1.6186	315.8	209.4	94.7	14S	59W
2316 Feb 09	07:52:24	536	140	3909	148	P	t-	0.7523	1.5261	0.4299	330.6	151.4	-	16N	112W
2316 Aug 04	20:36:17	537	141	3915	153	P	a-	-0.8980	1.1931	0.2274	266.7	103.1	-	18S	55E
2316 Dec 29	20:38:45	538	141	3920	120	N	-a	-1.4453	0.2162	-0.8039	129.8	-	-	22N	53E
2317 Jan 28	10:53:58	538	141	3921	158	N	a-	1.3953	0.3234	-0.7273	163.0	-	-	20N	158W
2317 Jun 25	20:15:56	540	141	3926	125	P	-t	0.9956	1.0533	0.0096	280.3	23.7	-	22S	59E
2317 Dec 19	09:55:14	541	142	3932	130	P	-a	-0.7237	1.5180	0.5419	285.0	149.0	-	23N	147W
2318 Jun 14	22:00:41	542	142	3938	135	T+	pp	0.2477	2.4395	1.3681	370.5	228.8	88.9	23S	32E
2318 Dec 09	01:41:59	544	142	3944	140	T-	-p	-0.0547	2.7445	1.7707	321.5	211.2	97.8	23N	25W
2319 Jun 03	23:18:18	545	143	3950	145	P	t-	-0.5110	1.9460	0.8954	344.9	199.2	-	23S	12E
2319 Nov 28	15:18:34	546	143	3956	150	P	a-	0.6528	1.6670	0.6533	308.1	167.1	-	22N	129E
2320 Apr 23	20:50:32	547	143	3961	117	N	-a	1.4022	0.2750	-0.7047	141.4	-	-	11S	50E
2320 May 23	06:38:10	548	144	3962	155	N	a-	-1.2312	0.5985	-0.4007	208.7	-	-	22S	98W
2320 Oct 18	06:08:41	549	144	3967	122	N	-t	-1.5163	0.1167	-0.9644	104.9	-	-	8N	93W

2320	Nov 16	22:38:56	549	144	3968	160	N	t-	1.4138	0.2983	-0.7700	161.2	-	-	20N	18E
2321	Apr 13	12:29:34	550	144	3973	127	P	-a	0.6672	1.6109	0.6562	287.2	160.3	-	8S	175E
2321	Oct 07	05:58:35	551	145	3979	132	P	-t	-0.8152	1.4033	0.3218	321.0	133.5	-	5N	90W
2322	Apr 03	04:39:44	553	145	3985	137	T-	pp	-0.0322	2.7857	1.8116	325.5	214.0	99.4	5S	67W
2322	Sep 26	09:09:54	554	145	3991	142	T-	pp	-0.0568	2.7718	1.7359	354.4	226.6	102.8	1N	137W
2323	Mar 23	16:43:40	556	146	3997	147	P	h-	-0.7810	1.4393	0.4111	301.7	140.6	-	1S	113E
2323	Sep 15	19:43:07	557	146	4003	152	P	a-	0.6823	1.5951	0.6168	296.6	160.9	-	3S	65E
2324	Feb 11	03:17:28	558	146	4008	119	N	-t	1.4561	0.2378	-0.8645	150.0	-	-	16N	43W
2324	Mar 11	21:29:27	558	146	4009	157	N	t-	-1.5451	0.0647	-1.0179	78.1	-	-	2N	42E
2324	Aug 06	04:31:50	559	147	4014	124	N	-a	-1.1393	0.7395	-0.2049	214.5	-	-	18S	64W
2324	Sep 04	11:36:02	560	147	4015	162	N	a-	1.3683	0.3207	-0.6264	146.9	-	-	6S	172W
2325	Jan 30	02:46:49	561	147	4020	129	P	-t	0.7693	1.4906	0.4033	324.3	145.9	-	18N	36W
2325	Jul 26	20:06:27	562	147	4026	134	T	-a	-0.4246	2.0679	1.0897	320.3	198.7	45.0	20S	63E
2326	Jan 19	07:48:31	563	148	4032	139	T+	pp	0.0455	2.7918	1.7576	346.5	221.8	100.9	20N	112W
2326	Jul 16	05:54:46	565	148	4038	144	T	p-	0.3565	2.2201	1.1879	348.0	214.1	65.9	21S	85W
2327	Jan 08	19:50:18	566	148	4044	149	P	a-	-0.6349	1.6851	0.7009	296.8	166.3	-	22N	66E
2327	Jul 05	08:44:31	568	149	4050	154	N	t-	1.1464	0.7889	-0.2791	256.8	-	-	22S	128W
2327	Nov 30	00:45:49	569	149	4055	121	N	-a	1.3950	0.2886	-0.6920	142.6	-	-	23N	12W
2327	Dec 29	11:23:31	569	149	4056	159	N	a-	-1.2785	0.4979	-0.4738	181.0	-	-	22N	168W
2328	May 24	20:06:38	570	149	4061	126	P	-t	-0.9226	1.1847	0.1460	290.0	89.5	-	22S	60E
2328	Nov 18	12:59:37	571	150	4067	131	P	-a	0.7575	1.4824	0.4541	303.0	146.1	-	20N	164E
2329	May 14	05:26:10	573	150	4073	136	T-	pp	-0.1279	2.6162	1.6302	333.0	216.9	97.6	19S	80W
2329	Nov 07	18:18:32	574	151	4079	141	T+	pp	0.0568	2.7934	1.7146	369.9	231.9	103.7	16N	84E
2330	May 03	20:33:06	576	151	4085	146	P	a-	0.5998	1.7334	0.7811	294.0	171.8	-	15S	54E
2330	Oct 27	18:12:55	577	151	4091	151	P	t-	-0.6542	1.7039	0.6122	343.6	176.5	-	12N	85E
2331	Mar 25	03:42:17	578	152	4096	118	N	-a	-1.3180	0.4341	-0.5548	175.6	-	-	3S	52W
2331	Apr 23	13:14:06	578	152	4097	156	N	a-	1.3071	0.4402	-0.5210	172.2	-	-	11S	164E
2331	Sep 17	06:41:30	580	152	4102	123	N	-t	1.4466	0.2123	-0.8048	131.1	-	-	1S	100W
2331	Oct 16	19:49:56	580	152	4103	161	N	t-	-1.3366	0.4330	-0.6212	190.2	-	-	8N	62E
2332	Mar 13	13:48:33	581	152	4108	128	P	-a	-0.6557	1.6788	0.6313	323.3	171.0	-	2N	157E
2332	Sep 05	19:11:20	582	153	4114	133	P	-a	0.6533	1.6411	0.6770	294.5	165.0	-	6S	74E
2333	Mar 02	16:30:26	584	153	4120	138	T+	pp	0.0466	2.8198	1.7260	376.0	234.3	104.5	7N	118E
2333	Aug 26	11:49:38	585	153	4126	143	T-	pp	-0.0806	2.6822	1.7373	317.1	210.8	97.9	10S	174W
2334	Feb 19	15:48:17	587	154	4132	148	P	t-	0.7362	1.5539	0.4613	331.7	155.8	-	12N	129E
2334	Aug 16	03:59:51	588	154	4138	153	P	a-	-0.8304	1.3191	0.3493	277.4	125.9	-	15S	56W
2335	Jan 10	05:15:59	589	154	4143	120	N	-a	-1.4455	0.2147	-0.8029	128.9	-	-	21N	75W
2335	Feb 08	19:15:18	589	154	4144	158	N	a-	1.3834	0.3430	-0.7033	167.0	-	-	16N	77E
2335	Jul 07	02:55:54	591	155	4149	125	N	-t	1.0807	0.8983	-0.1477	263.9	-	-	22S	40W
2335	Dec 30	18:45:23	592	155	4155	130	P	-a	-0.7279	1.5101	0.5345	284.1	148.0	-	22N	82E
2336	Jun 25	04:27:13	593	155	4161	135	T	-t	0.3347	2.2793	1.2089	366.5	222.5	71.0	23S	63W

2336	Dec 19	10:28:54	595	156	4167	140	T-	-p	-0.0624	2.7315	1.7552	322.0	211.3	97.6	23N	156W
2337	Jun 14	06:03:16	596	156	4173	145	T	t-	-0.4307	2.0911	1.0448	349.3	208.8	34.0	24S	88W
2337	Dec 08	23:45:52	598	157	4179	150	P	a-	0.6423	1.6887	0.6702	310.5	169.2	-	23N	4E
2338	May 05	04:35:59	599	157	4184	117	N	-a	1.4491	0.1861	-0.7883	116.9	-	-	15S	67W
2338	Jun 03	13:55:26	599	157	4185	155	N	a-	-1.1603	0.7260	-0.2679	225.9	-	-	23S	153E
2338	Oct 29	13:35:07	600	157	4190	122	N	-t	-1.5569	0.0447	-1.0413	65.5	-	-	12N	155E
2338	Nov 28	06:37:23	600	157	4191	160	N	t-	1.3976	0.3306	-0.7427	169.8	-	-	22N	100W
2339	Apr 24	20:32:43	602	158	4196	127	P	-a	0.7125	1.5262	0.5746	282.1	151.9	-	12S	54E
2339	Oct 18	13:14:22	603	158	4202	132	P	-t	-0.8626	1.3174	0.2339	313.8	115.2	-	9N	161E
2340	Apr 13	12:45:16	604	158	4208	137	T+	pp	0.0074	2.8309	1.8575	326.2	214.6	99.9	9S	171E
2340	Oct 06	16:39:54	606	159	4214	142	T-	pp	-0.1075	2.6788	1.6431	352.7	224.9	100.4	5N	110E
2341	Apr 03	00:36:58	607	159	4220	147	P	h-	-0.7481	1.4998	0.4713	306.7	149.7	-	6S	6W
2341	Sep 26	03:29:15	609	159	4226	152	P	a-	0.6276	1.6955	0.7172	301.2	170.2	-	2N	52W
2342	Feb 21	11:09:46	610	160	4231	119	N	-t	1.4736	0.2050	-0.8957	139.7	-	-	12N	161W
2342	Mar 23	05:08:14	610	160	4232	157	N	t-	-1.5166	0.1164	-0.9652	104.5	-	-	2S	74W
2342	Aug 17	12:05:11	611	160	4237	124	N	-a	-1.2083	0.6140	-0.3327	198.3	-	-	15S	177W
2342	Sep 15	19:24:20	612	160	4238	162	N	a-	1.3113	0.4263	-0.5227	167.7	-	-	2S	70E
2343	Feb 10	10:51:39	613	161	4243	129	P	-t	0.7796	1.4697	0.3860	321.8	142.8	-	15N	157W
2343	Aug 07	03:21:50	614	161	4249	134	P	-a	-0.5005	1.9307	0.9484	316.6	190.8	-	17S	46W
2344	Jan 30	16:18:40	616	161	4255	139	T+	pp	0.0518	2.7782	1.7479	345.1	221.2	100.6	18N	121E
2344	Jul 26	12:40:59	617	162	4261	144	T	pp	0.2752	2.3711	1.3352	353.3	220.8	83.8	19S	174E
2345	Jan 19	04:38:49	619	162	4267	149	P	a-	-0.6290	1.6949	0.7126	296.7	167.1	-	20N	65W
2345	Jul 15	15:10:58	620	162	4273	154	N	t-	1.0613	0.9453	-0.1234	276.9	-	-	20S	136E
2345	Dec 10	09:24:57	621	163	4278	121	N	-a	1.4085	0.2658	-0.7185	137.5	-	-	24N	141W
2346	Jan 08	20:14:44	621	163	4279	159	N	a-	-1.2743	0.5060	-0.4666	182.5	-	-	21N	60E
2346	Jun 05	03:03:17	623	163	4284	126	P	-t	-0.9922	1.0545	0.0209	276.3	34.3	-	23S	43W
2346	Nov 29	21:15:59	624	163	4290	131	P	-a	0.7757	1.4516	0.4179	302.2	141.3	-	22N	40E
2347	May 25	12:53:34	626	164	4296	136	T-	pp	-0.1917	2.4965	1.5159	330.1	214.2	92.6	21S	169E
2347	Nov 19	02:04:58	627	164	4302	141	T+	pp	0.0825	2.7489	1.6651	371.0	231.8	102.7	19N	32W
2348	May 14	04:21:13	628	165	4308	146	P	a-	0.5425	1.8369	0.8878	298.1	179.7	-	18S	63W
2348	Nov 07	01:44:24	630	165	4314	151	P	t-	-0.6202	1.7675	0.6733	347.3	183.1	-	16N	28W
2349	Apr 04	11:49:53	631	165	4319	118	N	-a	-1.3548	0.3665	-0.6222	162.8	-	-	7S	174W
2349	May 03	21:07:25	631	165	4320	156	N	a-	1.2603	0.5255	-0.4347	186.9	-	-	15S	45E
2349	Sep 27	14:12:28	633	166	4325	123	N	-h	1.4936	0.1259	-0.8907	101.4	-	-	3N	147E
2349	Oct 27	03:30:27	633	166	4326	161	N	h-	-1.2963	0.5069	-0.5475	203.9	-	-	11N	54W
2350	Mar 24	21:42:57	634	166	4331	128	P	-h	-0.6866	1.6222	0.5746	321.0	165.1	-	2S	38E
2350	Sep 17	02:54:53	636	166	4337	133	P	-a	0.7088	1.5395	0.5752	288.2	154.3	-	2S	43W
2351	Mar 14	00:12:40	637	167	4343	138	T+	pp	0.0206	2.8666	1.7744	376.4	234.8	105.1	3N	2E
2351	Sep 06	19:32:41	638	167	4349	143	T-	pp	-0.0188	2.7970	1.8495	317.8	211.4	99.1	6S	69E
2352	Mar 01	23:39:17	640	167	4355	148	P	t-	0.7155	1.5898	0.5013	333.2	161.2	-	8N	11E

2352	Aug 26	11:26:40	641	168	4361	153	P	a-	-0.7660	1.4395	0.4652	286.9	143.2	-	11S	168W
2353	Jan 20	13:54:27	643	168	4366	120	N	-a	-1.4454	0.2132	-0.8012	128.0	-	-	19N	156E
2353	Feb 19	03:33:51	643	168	4367	158	N	a-	1.3686	0.3677	-0.6737	171.8	-	-	13N	47W
2353	Jul 17	09:35:19	644	169	4372	125	N	-t	1.1653	0.7444	-0.3043	244.8	-	-	20S	140W
2354	Jan 10	03:35:56	646	169	4378	130	P	-a	-0.7321	1.5019	0.5271	283.3	147.0	-	21N	50W
2354	Jul 06	10:53:56	647	169	4384	135	T	-t	0.4215	2.1197	1.0501	361.3	214.0	36.6	22S	159W
2354	Dec 30	19:17:26	649	170	4390	140	T-	-p	-0.0685	2.7214	1.7429	322.6	211.4	97.5	23N	74E
2355	Jun 25	12:46:18	650	170	4396	145	T	t-	-0.3479	2.2409	1.1986	352.8	216.4	68.0	24S	172E
2355	Dec 20	08:16:42	652	170	4402	150	P	a-	0.6355	1.7034	0.6806	312.5	170.7	-	24N	122W
2356	May 15	12:14:45	653	171	4407	117	N	-a	1.5017	0.0871	-0.8823	80.4	-	-	18S	179E
2356	Jun 13	21:09:22	653	171	4408	155	N	a-	-1.0859	0.8601	-0.1291	241.5	-	-	24S	45E
2356	Dec 08	14:40:34	655	171	4414	160	N	t-	1.3857	0.3546	-0.7232	176.1	-	-	24N	140E
2357	May 05	04:27:44	656	171	4419	127	P	-a	0.7647	1.4292	0.4802	276.0	140.9	-	15S	65W
2357	Oct 28	20:41:13	657	172	4425	132	P	-t	-0.9010	1.2478	0.1625	307.5	96.9	-	13N	49E
2358	Apr 24	20:41:45	659	172	4431	137	T+	pp	0.0542	2.7449	1.7720	326.8	214.8	99.5	13S	52E
2358	Oct 18	00:19:34	660	173	4437	142	T-	pp	-0.1509	2.5990	1.5634	350.8	223.0	97.2	9N	6W
2359	Apr 14	08:20:05	662	173	4443	147	P	t-	-0.7077	1.5738	0.5452	312.4	159.6	-	10S	122W
2359	Oct 07	11:23:42	663	173	4449	152	P	a-	0.5791	1.7846	0.8059	304.8	177.3	-	6N	171W
2360	Mar 03	18:54:40	664	174	4454	119	N	-t	1.4964	0.1620	-0.9365	124.6	-	-	8N	83E
2360	Apr 02	12:35:47	665	174	4455	157	N	t-	-1.4797	0.1833	-0.8967	130.5	-	-	6S	174E
2360	Aug 27	19:41:57	666	174	4460	124	N	-a	-1.2742	0.4948	-0.4550	180.4	-	-	11S	68E
2360	Sep 26	03:19:51	666	174	4461	162	N	a-	1.2601	0.5213	-0.4301	183.8	-	-	2N	50W
2361	Feb 20	18:53:07	667	174	4466	129	P	-t	0.7931	1.4427	0.3633	318.8	138.7	-	11N	83E
2361	Aug 17	10:38:40	669	175	4472	134	P	-a	-0.5741	1.7981	0.8112	312.2	181.3	-	14S	155W
2362	Feb 10	00:47:26	671	175	4478	139	T+	pp	0.0599	2.7611	1.7351	343.6	220.6	100.3	15N	6W
2362	Aug 06	19:27:11	672	176	4484	144	T+	pp	0.1948	2.5208	1.4808	357.6	225.8	94.9	16S	73E
2363	Jan 30	13:27:20	674	176	4490	149	P	a-	-0.6231	1.7046	0.7246	296.5	167.9	-	17N	164E
2363	Jul 26	21:36:01	675	176	4496	154	P	t-	0.9749	1.1045	0.0347	294.6	45.9	-	19S	40E
2363	Dec 21	18:08:30	676	177	4501	121	N	-a	1.4180	0.2498	-0.7377	133.8	-	-	25N	90E
2364	Jan 20	05:07:04	677	177	4502	159	N	a-	-1.2715	0.5115	-0.4617	183.5	-	-	19N	72W
2364	Jun 15	09:57:14	678	177	4507	126	N	-t	-1.0646	0.9191	-0.1097	260.5	-	-	24S	146W
2364	Dec 10	05:36:16	679	177	4513	131	P	-a	0.7899	1.4281	0.3895	301.9	137.4	-	24N	83W
2365	Jun 04	20:18:36	681	178	4519	136	T-	-p	-0.2581	2.3722	1.3963	326.6	210.5	84.9	23S	58E
2365	Nov 29	09:57:06	682	178	4525	141	T+	pp	0.1031	2.7132	1.6250	371.9	231.7	101.7	22N	150W
2366	May 25	12:05:07	684	179	4531	146	T	a-	0.4817	1.9469	1.0007	302.1	187.0	4.1	20S	179W
2366	Nov 18	09:23:05	685	179	4537	151	P	t-	-0.5917	1.8208	0.7245	350.1	188.1	-	19N	142W
2367	Apr 15	19:48:53	687	179	4542	118	N	-a	-1.3977	0.2876	-0.7010	145.7	-	-	11S	65E
2367	May 15	04:53:36	687	179	4543	156	N	a-	1.2082	0.6208	-0.3389	201.6	-	-	18S	71W
2367	Oct 08	21:52:36	688	180	4548	123	N	-h	1.5337	0.0521	-0.9642	65.5	-	-	7N	31E
2367	Nov 07	11:20:25	688	180	4549	161	N	h-	-1.2631	0.5679	-0.4866	213.9	-	-	15N	171W

2368	Apr 04	05:25:30	690	180	4554	128	P	-h	-0.7261	1.5496	0.5021	317.4	156.6	-	6S	78W
2368	Sep 27	10:47:19	691	180	4560	133	P	-a	0.7571	1.4511	0.4861	282.2	143.5	-	3N	161W
2369	Mar 24	07:44:14	693	181	4566	138	T-	pp	-0.0135	2.8785	1.7885	376.5	235.1	105.4	1S	112W
2369	Sep 17	03:22:08	694	181	4572	143	T+	pp	0.0374	2.7642	1.8139	318.2	211.3	98.8	2S	49W
2370	Mar 13	07:22:51	696	182	4578	148	P	t-	0.6883	1.6374	0.5535	335.3	167.6	-	4N	105W
2370	Sep 06	18:57:22	697	182	4584	153	P	a-	-0.7056	1.5529	0.5736	295.2	156.7	-	7S	78E
2371	Jan 31	22:31:46	699	182	4589	120	N	-a	-1.4467	0.2089	-0.8019	126.3	-	-	16N	28E
2371	Mar 02	11:47:04	699	182	4590	158	N	a-	1.3489	0.4011	-0.6349	178.1	-	-	9N	171W
2371	Jul 28	16:11:28	700	183	4595	125	N	-t	1.2512	0.5884	-0.4635	221.7	-	-	18S	122E
2371	Aug 27	05:10:45	701	183	4596	163	Nb	t-	-1.5155	0.0933	-0.9385	89.8	-	-	12S	74W
2372	Jan 21	12:27:43	702	183	4601	130	P	-a	-0.7354	1.4953	0.5217	282.5	146.2	-	19N	178E
2372	Jul 16	17:18:28	703	184	4607	135	P	-t	0.5096	1.9580	0.8886	354.7	202.8	-	21S	105E
2373	Jan 10	04:07:32	705	184	4613	140	T-	-p	-0.0728	2.7143	1.7342	323.2	211.6	97.4	22N	57W
2373	Jul 05	19:28:56	706	184	4619	145	T-	t-	-0.2641	2.3929	1.3541	355.2	222.1	85.7	23S	72E
2373	Dec 30	16:50:26	708	185	4625	150	P	a-	0.6322	1.7114	0.6848	314.1	171.6	-	24N	111E
2374	Jun 25	04:21:35	710	185	4631	155	P	a-	-1.0090	0.9990	0.0141	255.4	27.0	-	24S	62W
2374	Dec 19	22:47:51	711	185	4637	160	N	t-	1.3776	0.3716	-0.7102	180.5	-	-	25N	20E
2375	May 16	12:17:11	712	186	4642	127	P	-a	0.8214	1.3240	0.3773	268.8	126.9	-	18S	178E
2375	Nov 09	04:16:34	714	186	4648	132	P	-t	-0.9330	1.1898	0.1030	301.9	77.7	-	16N	65W
2376	May 05	04:29:54	716	187	4654	137	T+	-p	0.1074	2.6471	1.6744	327.0	214.5	97.8	16S	65W
2376	Oct 28	08:08:59	717	187	4660	142	T-	pp	-0.1871	2.5325	1.4970	348.8	220.9	93.7	13N	123W
2377	Apr 24	15:54:41	719	187	4666	147	P	t-	-0.6611	1.6595	0.6307	318.6	169.9	-	14S	124E
2377	Oct 17	19:26:07	720	188	4672	152	P	a-	0.5368	1.8624	0.8834	307.5	182.7	-	10N	68E
2378	Mar 15	02:32:25	722	188	4677	119	N	-t	1.5246	0.1089	-0.9869	102.6	-	-	4N	32W
2378	Apr 13	19:55:13	722	188	4678	157	N	t-	-1.4366	0.2617	-0.8168	155.0	-	-	10S	64E
2378	Sep 08	03:23:54	723	188	4683	124	N	-a	-1.3354	0.3841	-0.5690	161.0	-	-	7S	48W
2378	Oct 07	11:22:19	723	189	4684	162	N	a-	1.2148	0.6058	-0.3482	196.6	-	-	7N	171W
2379	Mar 04	02:48:34	725	189	4689	129	P	-t	0.8121	1.4056	0.3310	314.9	132.8	-	7N	36W
2379	Aug 28	17:58:09	726	189	4695	134	P	-a	-0.6446	1.6712	0.6792	307.2	170.1	-	10S	94E
2380	Feb 21	09:11:42	728	190	4701	139	T+	pp	0.0726	2.7354	1.7143	342.0	219.9	99.9	11N	132W
2380	Aug 17	02:16:10	729	190	4707	144	T+	pp	0.1171	2.6655	1.6209	360.9	229.1	101.5	13S	30W
2381	Feb 09	22:11:30	731	190	4713	149	P	a-	-0.6131	1.7214	0.7443	296.7	169.4	-	14N	33E
2381	Aug 06	04:04:38	733	191	4719	154	P	t-	0.8908	1.2595	0.1882	309.6	104.6	-	16S	57W
2382	Jan 01	02:54:07	734	191	4724	121	N	-a	1.4263	0.2361	-0.7541	130.6	-	-	24N	40W
2382	Jan 30	13:57:08	734	191	4725	159	N	a-	-1.2668	0.5201	-0.4532	185.1	-	-	16N	156E
2382	Jun 26	16:49:14	736	192	4730	126	N	-t	-1.1392	0.7801	-0.2444	242.4	-	-	24S	112E
2382	Dec 21	14:00:39	737	192	4736	131	P	-a	0.8002	1.4113	0.3684	301.9	134.4	-	24N	152E
2383	Jun 16	03:39:21	739	192	4742	136	T	-p	-0.3291	2.2398	1.2682	322.3	205.5	73.0	24S	51W
2383	Dec 10	17:55:39	740	193	4748	141	T+	pp	0.1179	2.6880	1.5961	372.7	231.6	100.8	23N	92E
2384	Jun 04	19:42:05	742	193	4754	146	T	a-	0.4149	2.0684	1.1245	305.9	193.6	50.8	22S	67E

2384	Nov 28	17:11:02	744	194	4760	151	P	t-	-0.5706	1.8604	0.7626	352.0	191.5	-	21N	102E
2385	Apr 26	03:39:09	745	194	4765	118	N	-a	-1.4472	0.1969	-0.7917	121.9	-	-	15S	53W
2385	May 25	12:32:57	745	194	4766	156	N	a-	1.1510	0.7257	-0.2339	216.2	-	-	20S	174E
2385	Nov 17	19:18:56	747	194	4772	161	N	h-	-1.2359	0.6177	-0.4366	221.4	-	-	18N	70E
2386	Apr 15	12:59:58	748	195	4777	128	P	-h	-0.7715	1.4662	0.4188	312.6	145.3	-	11S	168E
2386	Oct 08	18:46:45	750	195	4783	133	P	-a	0.8003	1.3724	0.4065	276.5	132.6	-	7N	78E
2387	Apr 04	15:07:50	751	195	4789	138	T-	pp	-0.0541	2.8029	1.7152	376.3	235.0	104.9	6S	137E
2387	Sep 28	11:16:55	753	196	4795	143	T+	-p	0.0891	2.6712	1.7175	318.3	210.7	97.3	2N	168W
2388	Mar 23	15:00:15	754	196	4801	148	P	t-	0.6554	1.6952	0.6163	337.7	174.8	-	1S	140E
2388	Sep 17	02:33:16	756	197	4807	153	P	a-	-0.6501	1.6574	0.6728	302.3	167.5	-	3S	36W
2389	Feb 11	07:06:04	757	197	4812	120	N	-a	-1.4511	0.1989	-0.8078	123.0	-	-	13N	100W
2389	Mar 12	19:54:35	758	197	4813	158	N	a-	1.3239	0.4442	-0.5861	185.9	-	-	4N	67E
2389	Aug 07	22:50:33	759	197	4818	125	N	-t	1.3335	0.4392	-0.6163	194.9	-	-	15S	22E
2389	Sep 06	12:15:04	759	197	4819	163	N	t-	-1.4545	0.2081	-0.8292	133.4	-	-	8S	179E
2390	Jan 31	21:17:33	761	198	4824	130	P	-a	-0.7404	1.4852	0.5133	281.6	145.1	-	17N	47E
2390	Jul 27	23:44:45	762	198	4830	135	P	-t	0.5961	1.7991	0.7298	346.8	188.9	-	18S	9E
2391	Jan 21	12:56:41	764	199	4836	140	T-	-p	-0.0776	2.7062	1.7249	323.7	211.8	97.3	20N	172E
2391	Jul 17	02:12:49	766	199	4842	145	T-	pp	-0.1807	2.5444	1.5087	356.5	225.9	96.4	21S	28W
2392	Jan 11	01:23:55	767	199	4848	150	P	a-	0.6291	1.7187	0.6889	315.7	172.4	-	23N	16W
2392	Jul 05	11:33:10	769	200	4854	155	P	a-	-0.9306	1.1410	0.1598	267.7	88.7	-	24S	169W
2392	Dec 30	06:57:19	770	200	4860	160	N	t-	1.3717	0.3839	-0.7010	183.8	-	-	24N	101W
2393	May 26	20:00:14	772	201	4865	127	P	-a	0.8835	1.2091	0.2642	260.3	108.0	-	20S	63E
2393	Nov 19	12:00:29	773	201	4871	132	P	-t	-0.9584	1.1438	0.0560	297.1	57.5	-	19N	180E
2394	May 16	12:09:59	775	201	4877	137	T+	-p	0.1667	2.5384	1.5655	326.7	213.3	94.3	19S	180W
2394	Nov 08	16:08:08	777	202	4883	142	T-	pp	-0.2159	2.4795	1.4443	346.9	218.9	90.3	16N	117E
2395	May 05	23:17:47	778	202	4889	147	P	t-	-0.6059	1.7609	0.7317	325.1	180.5	-	17S	13E
2395	Oct 29	03:37:43	780	203	4895	152	P	a-	0.5017	1.9271	0.9475	309.5	186.7	-	14N	55W
2396	Mar 25	10:01:26	781	203	4900	119	Ne	-t	1.5593	0.0436	-1.0490	65.2	-	-	1S	145W
2396	Apr 24	03:03:40	782	203	4901	157	N	t-	-1.3852	0.3551	-0.7217	179.2	-	-	14S	44W
2396	Sep 18	11:11:25	783	203	4906	124	N	-a	-1.3918	0.2826	-0.6744	139.7	-	-	3S	165W
2396	Oct 17	19:32:41	783	203	4907	162	N	a-	1.1760	0.6784	-0.2785	206.7	-	-	11N	66E
2397	Mar 14	10:38:04	785	204	4912	129	P	-t	0.8364	1.3584	0.2891	310.1	124.6	-	3N	154W
2397	Sep 08	01:22:03	786	204	4918	134	P	-a	-0.7105	1.5530	0.5555	301.8	157.4	-	6S	17W
2398	Mar 03	17:32:53	788	205	4924	139	T+	pp	0.0885	2.7036	1.6877	340.3	219.2	99.2	7N	103E
2398	Aug 28	09:06:26	790	205	4930	144	T+	pp	0.0414	2.8069	1.7575	363.4	231.0	104.6	10S	133W
2399	Feb 21	06:53:32	791	205	4936	149	P	a-	-0.6013	1.7416	0.7676	297.1	171.2	-	10N	97W
2399	Aug 17	10:35:25	793	206	4942	154	P	t-	0.8081	1.4122	0.3391	322.4	137.3	-	13S	155W
2400	Jan 12	11:40:47	794	206	4947	121	N	-a	1.4331	0.2247	-0.7678	127.9	-	-	23N	170W
2400	Feb 10	22:44:24	794	206	4948	159	N	a-	-1.2606	0.5315	-0.4416	187.1	-	-	13N	25E
2400	Jul 06	23:41:22	796	206	4953	126	N	-t	-1.2141	0.6408	-0.3799	221.8	-	-	24S	10E

2400 Aug 05	12:01:16	796	207	4954	164	Nb	t-	1.5295	0.0757	-0.9721	82.9	-	-	15S	176W
2400 Dec 31	22:26:33	797	207	4959	131	P	-a	0.8086	1.3979	0.3512	302.0	132.0	-	24N	27E

25TH CENTURY CE

**In the 25th century CE the total number of lunar eclipses will be 237 lunar eclipses:
83 penumbral lunar eclipses, 85 partial lunar eclipses, 69 total lunar eclipses
(46 central total lunar eclipses, 23 non-central total lunar eclipses).**

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
ECLIPSE															
2401 Jun 26	10:59:49	799	207	4965	136	T	-p	-0.4007	2.1065	1.1386	317.3	199.2	54.6	24S	161W
2401 Dec 21	01:56:06	801	208	4971	141	T+	pp	0.1307	2.6662	1.5711	373.5	231.4	99.9	24N	26W
2402 Jun 16	03:16:58	802	208	4977	146	T	p-	0.3462	2.1935	1.2514	309.2	199.2	69.4	23S	46W
2402 Dec 10	01:04:26	804	209	4983	151	P	t-	-0.5534	1.8924	0.7936	353.3	194.1	-	22N	15W
2403 May 07	11:19:37	806	209	4988	118	N	-a	-1.5037	0.0933	-0.8955	85.0	-	-	18S	168W
2403 Jun 05	20:05:08	806	209	4989	156	N	a-	1.0885	0.8406	-0.1194	230.5	-	-	21S	62E
2403 Nov 29	03:25:43	807	209	4995	161	N	a-	-1.2146	0.6565	-0.3972	226.7	-	-	20N	51W
2404 Apr 25	20:22:54	809	210	5000	128	P	-t	-0.8256	1.3670	0.3196	306.2	129.2	-	14S	57E
2404 Oct 19	02:55:16	811	210	5006	133	P	-a	0.8363	1.3069	0.3400	271.5	122.2	-	11N	44W
2405 Apr 14	22:20:33	812	211	5012	138	T-	pp	-0.1034	2.7112	1.6261	375.6	234.3	103.0	10S	28E
2405 Oct 08	19:19:55	814	211	5018	143	T+	-p	0.1336	2.5912	1.6340	318.2	209.8	95.1	6N	70E
2406 Apr 03	22:29:29	816	211	5024	148	P	t-	0.6153	1.7660	0.6925	340.5	182.6	-	5S	27E
2406 Sep 28	10:14:01	817	212	5030	153	P	a-	-0.5994	1.7533	0.7629	308.6	176.2	-	2N	152W
2407 Feb 22	15:37:06	819	212	5035	120	N	-a	-1.4585	0.1830	-0.8192	117.7	-	-	9N	132E
2407 Mar 24	03:55:50	819	212	5036	158	N	a-	1.2931	0.4975	-0.5267	194.9	-	-	0S	54W
2407 Aug 19	05:30:17	820	212	5041	125	N	-t	1.4138	0.2938	-0.7656	162.1	-	-	12S	78W
2407 Sep 17	19:23:23	821	213	5042	163	N	t-	-1.3973	0.3160	-0.7272	163.5	-	-	3S	72E
2408 Feb 12	06:04:34	822	213	5047	130	P	-a	-0.7480	1.4704	0.5006	280.3	143.5	-	13N	85W

2408 Aug 07	06:12:57	824	213	5053	135	P	-t	0.6809	1.6438	0.5740	337.7	171.8	-	16S	88W
2409 Jan 31	21:44:38	825	214	5059	140	T-	-p	-0.0828	2.6971	1.7149	324.3	212.1	97.3	17N	40E
2409 Jul 27	08:59:04	827	214	5065	145	T-	pp	-0.0982	2.6944	1.6613	356.8	227.9	102.2	19S	129W
2410 Jan 21	09:56:46	829	215	5071	150	P	a-	0.6263	1.7251	0.6927	317.1	173.3	-	20N	143W
2410 Jul 16	18:45:57	830	215	5077	155	P	a-	-0.8523	1.2830	0.3050	278.3	119.7	-	22S	84E
2411 Jan 10	15:08:14	832	215	5083	160	N	t-	1.3675	0.3929	-0.6945	186.3	-	-	23N	138E
2411 Jun 07	03:37:46	834	216	5088	127	P	-a	0.9499	1.0865	0.1431	250.1	80.8	-	22S	51W
2411 Jul 06	10:22:41	834	216	5089	165	Nb	a-	-1.5405	0.0028	-0.9403	14.2	-	-	24S	151W
2411 Nov 30	19:52:22	835	216	5094	132	P	-t	-0.9775	1.1091	0.0205	293.2	34.9	-	21N	63E
2412 May 26	19:43:24	837	217	5100	137	T+	-p	0.2307	2.4214	1.4479	325.9	211.2	88.2	21S	67E
2412 Nov 19	00:15:24	839	217	5106	142	T-	-p	-0.2386	2.4377	1.4029	345.1	217.1	87.1	19N	4W
2413 May 16	06:33:35	840	217	5112	147	P	t-	-0.5457	1.8718	0.8420	331.6	190.6	-	20S	96W
2413 Nov 08	11:57:23	842	218	5118	152	P	a-	0.4733	1.9795	0.9994	310.8	189.5	-	17N	180E
2414 May 05	10:04:11	844	218	5124	157	N	t-	-1.3275	0.4602	-0.6150	202.2	-	-	17S	149W
2414 Sep 29	19:04:39	845	219	5129	124	N	-a	-1.4432	0.1904	-0.7708	115.9	-	-	1N	76E
2414 Oct 29	03:49:49	846	219	5130	162	N	a-	1.1430	0.7405	-0.2194	214.8	-	-	14N	59W
2415 Mar 25	18:20:35	847	219	5135	129	P	-t	0.8668	1.2996	0.2360	304.1	113.2	-	1S	90E
2415 Sep 19	08:51:05	849	219	5141	134	P	-a	-0.7714	1.4443	0.4410	296.2	143.2	-	2S	130W
2416 Mar 14	01:45:54	850	220	5147	139	T+	pp	0.1119	2.6579	1.6476	338.4	218.2	98.1	3N	21W
2416 Sep 07	16:02:32	852	220	5153	144	T-	pp	-0.0289	2.8326	1.7780	365.0	231.5	104.9	6S	122E
2417 Mar 03	15:29:01	854	221	5159	149	P	a-	-0.5837	1.7722	0.8015	297.9	173.7	-	6N	134E
2417 Aug 27	17:11:32	856	221	5165	154	P	t-	0.7295	1.5574	0.4823	333.1	160.1	-	9S	106E
2418 Jan 22	20:25:47	857	221	5170	121	N	-a	1.4411	0.2109	-0.7834	124.4	-	-	21N	60E
2418 Feb 21	07:26:22	857	221	5171	159	N	a-	-1.2504	0.5498	-0.4227	190.1	-	-	9N	105W
2418 Jul 18	06:34:23	859	222	5176	126	N	-t	-1.2888	0.5020	-0.5153	198.2	-	-	22S	93W
2418 Aug 16	18:46:33	859	222	5177	164	N	t-	1.4488	0.2231	-0.8234	140.1	-	-	12S	83E
2419 Jan 12	06:53:22	860	222	5182	131	P	-a	0.8155	1.3868	0.3369	302.3	129.9	-	22N	98W
2419 Jul 07	18:17:22	862	223	5188	136	T	-a	-0.4754	1.9678	1.0031	311.5	191.3	8.5	23S	91E
2420 Jan 01	10:00:56	864	223	5194	141	T+	pp	0.1394	2.6514	1.5538	374.1	231.4	99.2	23N	146W
2420 Jun 26	10:47:39	866	224	5200	146	T	p-	0.2737	2.3260	1.3850	312.1	203.9	82.0	23S	157W
2420 Dec 20	09:03:38	867	224	5206	151	P	t-	-0.5406	1.9160	0.8169	354.1	195.9	-	23N	133W
2421 Jun 16	03:32:45	869	224	5212	156	P	a-	1.0225	0.9621	0.0011	244.1	7.5	-	22S	49W
2421 Dec 09	11:40:02	871	225	5218	161	N	a-	-1.1984	0.6857	-0.3670	230.3	-	-	22N	173W
2422 May 07	03:37:47	872	225	5223	128	P	-t	-0.8853	1.2576	0.2102	298.2	106.8	-	18S	52W
2422 Oct 30	11:10:43	874	226	5229	133	P	-a	0.8669	1.2513	0.2831	267.0	112.2	-	15N	168W
2423 Apr 26	05:25:44	876	226	5235	138	T-	pp	-0.1586	2.6086	1.5262	374.4	232.8	99.1	14S	78W
2423 Oct 20	03:29:18	878	226	5241	143	T+	-p	0.1723	2.5221	1.5611	318.0	208.6	92.3	10N	52W
2424 Apr 14	05:51:06	879	227	5247	148	P	t-	0.5686	1.8491	0.7810	343.6	190.6	-	9S	84W
2424 Oct 08	18:01:43	881	227	5253	153	P	a-	-0.5553	1.8372	0.8410	313.9	183.0	-	6N	90E
2425 Mar 05	00:03:12	882	228	5258	120	N	-a	-1.4702	0.1591	-0.8382	109.6	-	-	5N	5E

2425 Apr 03	11:50:58	883	228	5259	158	N	a-	1.2569	0.5610	-0.4571	204.8	-	-	4S	173W
2425 Aug 29	12:14:29	884	228	5264	125	N	-t	1.4895	0.1572	-0.9064	120.4	-	-	8S	180W
2425 Sep 28	02:37:33	885	228	5265	163	N	t-	-1.3452	0.4145	-0.6346	186.3	-	-	1N	38W
2426 Feb 22	14:46:51	886	228	5270	130	P	-a	-0.7595	1.4480	0.4805	278.6	141.0	-	9N	145E
2426 Aug 18	12:46:03	888	229	5276	135	P	-t	0.7615	1.4963	0.4258	327.6	151.4	-	12S	173E
2427 Feb 12	06:28:07	890	229	5282	140	T-	-p	-0.0913	2.6816	1.6990	324.8	212.3	97.1	14N	90W
2427 Aug 07	15:48:56	891	230	5288	145	T-	pp	-0.0180	2.8405	1.8096	356.2	228.3	104.4	16S	128E
2428 Feb 01	18:26:26	893	230	5294	150	P	a-	0.6218	1.7345	0.7000	318.7	174.4	-	18N	90E
2428 Jul 27	02:01:19	895	231	5300	155	P	a-	-0.7754	1.4229	0.4474	287.4	141.5	-	20S	25W
2429 Jan 20	23:16:44	897	231	5306	160	N	t-	1.3620	0.4039	-0.6853	189.1	-	-	21N	17E
2429 Jun 17	11:11:33	898	231	5311	127	P	-a	1.0192	0.9591	0.0163	238.3	27.8	-	22S	164W
2429 Jul 16	17:51:15	898	231	5312	165	N	a-	-1.4688	0.1338	-0.8085	96.6	-	-	23S	98E
2429 Dec 11	03:51:43	900	232	5317	132	Nx	-t	-0.9905	1.0853	-0.0033	290.2	-	-	22N	56W
2430 Jun 07	03:09:29	902	232	5323	137	T	-p	0.3000	2.2946	1.3201	324.4	207.8	78.4	22S	44W
2430 Nov 30	08:31:14	903	233	5329	142	T-	-p	-0.2549	2.4075	1.3735	343.4	215.5	84.6	21N	127W
2431 May 27	13:39:32	905	233	5335	147	P	t-	-0.4783	1.9960	0.9652	338.1	200.2	-	22S	158E
2431 Nov 19	20:25:35	907	233	5341	152	T	a-	0.4513	2.0201	1.0395	311.7	191.4	29.6	20N	53E
2432 May 15	16:54:27	909	234	5347	157	N	t-	-1.2616	0.5803	-0.4933	224.7	-	-	20S	109E
2432 Oct 10	03:05:16	910	234	5352	124	N	-a	-1.4883	0.1098	-0.8559	88.9	-	-	6N	45W
2432 Nov 08	12:15:12	910	234	5353	162	N	a-	1.1169	0.7900	-0.1729	220.9	-	-	18N	175E
2433 Apr 05	01:56:43	912	235	5358	129	P	-t	0.9031	1.2300	0.1723	296.9	97.3	-	5S	24W
2433 Sep 29	16:24:44	914	235	5364	134	P	-a	-0.8274	1.3446	0.3352	290.5	127.2	-	2N	116E
2434 Mar 25	09:54:37	915	236	5370	139	T+	pp	0.1395	2.6043	1.5998	336.3	217.0	96.4	2S	143W
2434 Sep 18	23:02:34	917	236	5376	144	T-	pp	-0.0951	2.7137	1.6538	365.9	231.0	102.8	2S	17E
2435 Mar 14	23:59:26	919	236	5382	149	P	a-	-0.5618	1.8104	0.8434	299.0	176.8	-	2N	6E
2435 Sep 07	23:52:35	921	237	5388	154	P	t-	0.6545	1.6960	0.6187	342.0	177.3	-	5S	5E
2436 Feb 03	05:08:59	922	237	5393	121	N	-a	1.4503	0.1947	-0.8009	120.0	-	-	18N	70W
2436 Mar 03	16:03:11	923	237	5394	159	N	a-	-1.2366	0.5746	-0.3970	194.1	-	-	5N	125E
2436 Jul 28	13:31:08	924	238	5399	126	N	-t	-1.3611	0.3678	-0.6466	171.1	-	-	20S	163E
2436 Aug 27	01:39:03	924	238	5400	164	N	t-	1.3725	0.3626	-0.6830	175.8	-	-	9S	21W
2437 Jan 22	15:17:33	926	238	5405	131	P	-a	0.8240	1.3725	0.3200	302.3	127.3	-	20N	137E
2437 Jul 18	01:38:00	928	238	5411	136	P	-a	-0.5483	1.8329	0.8707	305.1	182.0	-	21S	19W
2438 Jan 11	18:05:29	930	239	5417	141	T+	pp	0.1484	2.6358	1.5365	374.6	231.4	98.5	22N	94E
2438 Jul 07	18:17:18	931	239	5423	146	T+	p-	0.2003	2.4604	1.5200	314.3	207.5	90.6	22S	91E
2438 Dec 31	17:06:04	933	240	5429	151	P	t-	-0.5300	1.9353	0.8366	354.5	197.3	-	23N	108E
2439 Jun 27	10:55:57	935	240	5435	156	P	a-	0.9532	1.0902	0.1276	257.0	78.2	-	22S	159W
2439 Dec 20	19:59:35	937	241	5441	161	N	a-	-1.1859	0.7080	-0.3433	232.8	-	-	22N	63E
2440 May 17	10:41:47	938	241	5446	128	P	-t	-0.9528	1.1338	0.0862	287.9	69.8	-	20S	157W
2440 Nov 09	19:35:16	940	241	5452	133	P	-a	0.8905	1.2086	0.2392	263.3	103.7	-	18N	66E
2441 May 06	12:21:24	942	242	5458	138	T-	pp	-0.2214	2.4920	1.4123	372.4	230.0	92.2	17S	178E

2441	Oct 30	11:45:55	944	242	5464	143	T+	-p	0.2048	2.4644	1.4996	317.9	207.5	89.3	14N	177W
2442	Apr 25	13:05:11	946	243	5470	148	P	t-	0.5147	1.9450	0.8826	346.7	198.6	-	13S	167E
2442	Oct 20	01:55:56	947	243	5476	153	P	a-	-0.5172	1.9101	0.9079	318.4	188.4	-	10N	29W
2443	Mar 16	08:22:51	949	244	5481	120	N	-a	-1.4878	0.1241	-0.8679	96.7	-	-	0N	120W
2443	Apr 14	19:37:49	949	244	5482	158	N	a-	1.2129	0.6386	-0.3733	215.8	-	-	8S	70E
2443	Sep 09	19:02:36	951	244	5487	125	Ne	-t	1.5610	0.0282	-1.0399	51.7	-	-	4S	77E
2443	Oct 09	09:58:19	951	244	5488	163	N	t-	-1.2988	0.5028	-0.5523	204.4	-	-	5N	148W
2444	Mar 04	23:24:11	953	244	5493	130	P	-a	-0.7755	1.4174	0.4526	276.4	137.3	-	5N	15E
2444	Aug 28	19:24:49	954	245	5499	135	P	-t	0.8376	1.3571	0.2856	316.8	126.5	-	8S	73E
2445	Feb 22	15:07:07	956	245	5505	140	T-	-p	-0.1033	2.6597	1.6770	325.3	212.4	96.7	10N	140E
2445	Aug 17	22:44:45	958	246	5511	145	T+	pp	0.0583	2.7657	1.7365	354.6	227.3	103.3	13S	24E
2446	Feb 12	02:53:06	960	246	5517	150	P	a-	0.6155	1.7468	0.7107	320.4	176.0	-	14N	36W
2446	Aug 07	09:19:04	962	247	5523	155	P	a-	-0.6995	1.5610	0.5876	295.0	158.2	-	17S	134W
2447	Feb 01	07:24:27	964	247	5529	160	N	t-	1.3563	0.4149	-0.6753	191.9	-	-	18N	104W
2447	Jun 28	18:42:10	965	247	5534	127	N	-a	1.0907	0.8278	-0.1148	224.7	-	-	22S	85E
2447	Jul 28	01:20:15	965	247	5535	165	N	a-	-1.3975	0.2646	-0.6774	134.1	-	-	20S	14W
2447	Dec 22	11:56:09	967	248	5540	132	Nx	-t	-1.0002	1.0673	-0.0208	287.8	-	-	22N	176W
2448	Jun 17	10:30:30	969	248	5546	137	T	-a	0.3730	2.1615	1.1853	322.1	202.9	62.6	23S	153W
2448	Dec 10	16:53:18	971	249	5552	142	T-	-p	-0.2667	2.3852	1.3523	341.8	214.2	82.6	23N	109E
2449	Jun 06	20:39:59	972	249	5558	147	T	t-	-0.4068	2.1278	1.0957	344.1	208.8	48.3	23S	54E
2449	Nov 30	04:59:04	974	250	5564	152	T	a-	0.4334	2.0530	1.0722	312.2	192.9	39.5	22N	74W
2450	May 26	23:38:30	976	250	5570	157	N	t-	-1.1907	0.7098	-0.3625	245.6	-	-	22S	9E
2450	Oct 21	11:12:20	978	250	5575	124	N	-a	-1.5281	0.0393	-0.9310	53.6	-	-	9N	167W
2450	Nov 19	20:46:38	978	250	5576	162	N	a-	1.0959	0.8298	-0.1359	225.7	-	-	21N	48E
2451	Apr 16	09:23:54	979	251	5581	129	P	-t	0.9472	1.1461	0.0945	288.0	72.7	-	9S	137W
2451	Oct 11	00:05:23	981	251	5587	134	P	-a	-0.8769	1.2570	0.2413	285.0	109.8	-	6N	0W
2452	Apr 04	17:54:42	983	252	5593	139	T+	pp	0.1748	2.5365	1.5379	334.0	215.4	93.7	6S	96E
2452	Sep 29	06:10:27	985	252	5599	144	T-	pp	-0.1543	2.6079	1.5425	366.3	229.6	98.7	3N	91W
2453	Mar 25	08:21:31	987	253	5605	149	P	a-	-0.5329	1.8616	0.8983	300.6	180.5	-	3S	120W
2453	Sep 18	06:42:15	989	253	5611	154	P	t-	0.5863	1.8224	0.7427	349.1	190.2	-	1S	98W
2454	Feb 13	13:48:11	990	253	5616	121	N	-a	1.4626	0.1727	-0.8240	113.5	-	-	14N	161E
2454	Mar 15	00:33:00	991	253	5617	159	N	a-	-1.2176	0.6091	-0.3615	199.4	-	-	1N	3W
2454	Aug 08	20:30:21	992	254	5622	126	N	-t	-1.4321	0.2364	-0.7756	138.3	-	-	17S	59E
2454	Sep 07	08:37:30	992	254	5623	164	N	t-	1.2998	0.4957	-0.5493	202.3	-	-	5S	126W
2455	Feb 02	23:40:14	994	254	5628	131	P	-a	0.8332	1.3567	0.3023	302.1	124.4	-	17N	13E
2455	Jul 29	08:58:49	996	255	5634	136	P	-a	-0.6218	1.6970	0.7368	297.8	170.9	-	19S	128W
2456	Jan 23	02:10:07	998	255	5640	141	T+	pp	0.1568	2.6207	1.5206	375.0	231.3	97.9	20N	26W
2456	Jul 18	01:45:41	1000	256	5646	146	T+	p-	0.1257	2.5974	1.6568	316.0	210.0	96.1	21S	20W
2457	Jan 11	01:11:46	1002	256	5652	151	P	t-	-0.5215	1.9504	0.8527	354.6	198.4	-	21N	12W
2457	Jul 07	18:16:30	1003	256	5658	156	P	a-	0.8822	1.2214	0.2568	268.9	109.2	-	22S	91E

2457	Dec 31	04:23:19	1005	257	5664	161	N	a-	-1.1760	0.7251	-0.3241	234.4	-	-	22N	61W
2458	May 28	17:39:24	1007	257	5669	128	Nx	-t	-1.0245	1.0024	-0.0457	275.3	-	-	23S	99E
2458	Nov 21	04:06:20	1009	258	5675	133	P	-a	0.9092	1.1748	0.2043	260.3	96.2	-	21N	61W
2459	May 17	19:09:12	1011	258	5681	138	T	pt	-0.2904	2.3640	1.2868	369.5	225.8	80.8	20S	76E
2459	Nov 10	20:09:30	1012	259	5687	143	T+	-p	0.2313	2.4178	1.4492	317.8	206.4	86.3	18N	58E
2460	May 05	20:13:02	1014	259	5693	148	P	t-	0.4549	2.0519	0.9950	349.7	206.0	-	16S	60E
2460	Oct 30	09:56:52	1016	259	5699	153	P	a-	-0.4853	1.9717	0.9636	322.3	192.7	-	14N	149W
2461	Mar 26	16:36:08	1018	260	5704	120	N	-a	-1.5111	0.0788	-0.9080	77.1	-	-	4S	116E
2461	Apr 25	03:19:08	1018	260	5705	158	N	a-	1.1634	0.7262	-0.2796	227.1	-	-	12S	46W
2461	Oct 19	17:26:44	1020	260	5711	163	N	t-	-1.2587	0.5793	-0.4817	218.7	-	-	9N	99E
2462	Mar 16	07:55:12	1022	261	5716	130	P	-a	-0.7967	1.3771	0.4150	273.4	132.2	-	1N	113W
2462	Sep 09	02:10:00	1024	261	5722	135	P	-t	0.9085	1.2277	0.1550	305.4	94.9	-	4S	29W
2463	Mar 05	23:39:33	1025	262	5728	140	T-	-p	-0.1202	2.6286	1.6461	325.7	212.5	96.1	6N	12E
2463	Aug 29	05:47:13	1027	262	5734	145	T+	pp	0.1297	2.6341	1.6062	352.4	225.1	99.7	9S	82W
2464	Feb 23	11:12:17	1029	263	5740	150	P	a-	0.6041	1.7684	0.7312	322.6	178.4	-	10N	160W
2464	Aug 17	16:42:25	1031	263	5746	155	P	a-	-0.6277	1.6922	0.7202	301.3	171.0	-	13S	115E
2465	Feb 11	15:26:51	1033	263	5752	160	N	t-	1.3471	0.4320	-0.6586	195.9	-	-	15N	136E
2465	Jul 09	02:10:47	1035	264	5757	127	N	-a	1.1636	0.6942	-0.2489	208.8	-	-	21S	27W
2465	Aug 07	08:51:22	1035	264	5758	165	N	a-	-1.3276	0.3930	-0.5494	161.4	-	-	17S	127W
2466	Jan 01	20:04:16	1037	264	5763	132	Nx	-t	-1.0071	1.0540	-0.0328	285.7	-	-	22N	64E
2466	Jun 28	17:46:37	1038	265	5769	137	T	-a	0.4491	2.0230	1.0447	318.8	196.2	32.2	23S	99E
2466	Dec 22	01:21:40	1040	265	5775	142	T	-p	-0.2740	2.3710	1.3397	340.4	213.2	81.3	23N	17W
2467	Jun 18	03:31:36	1042	266	5781	147	T	p-	-0.3290	2.2714	1.2375	349.6	216.3	72.9	24S	48W
2467	Dec 11	13:39:53	1044	266	5787	152	T	a-	0.4214	2.0752	1.0944	312.4	193.7	44.8	23N	157E
2468	Jun 06	06:15:11	1046	266	5793	157	N	t-	-1.1139	0.8500	-0.2212	265.2	-	-	24S	90W
2468	Nov 30	05:24:26	1048	267	5799	162	N	a-	1.0806	0.8594	-0.1091	229.3	-	-	23N	80W
2469	Apr 26	16:45:32	1050	267	5804	129	P	-t	0.9961	1.0533	0.0077	277.7	20.9	-	13S	113E
2469	Oct 21	07:52:37	1052	268	5810	134	P	-a	-0.9197	1.1815	0.1596	279.9	90.6	-	10N	117W
2470	Apr 16	01:49:48	1053	268	5816	139	T+	-p	0.2151	2.4597	1.4670	331.4	213.2	89.8	10S	23W
2470	Oct 10	13:23:38	1055	269	5822	144	T-	pp	-0.2084	2.5113	1.4404	366.3	227.6	93.0	7N	160E
2471	Apr 05	16:38:07	1057	269	5828	149	P	a-	-0.4993	1.9215	0.9620	302.5	184.6	-	7S	115E
2471	Sep 29	13:39:36	1059	270	5834	154	P	t-	0.5238	1.9384	0.8561	354.8	200.0	-	3N	157E
2472	Feb 24	22:21:42	1061	270	5839	121	N	-a	1.4791	0.1427	-0.8546	103.7	-	-	11N	33E
2472	Mar 25	08:55:08	1061	270	5840	159	N	a-	-1.1927	0.6542	-0.3153	206.0	-	-	3S	129W
2472	Aug 19	03:36:28	1063	270	5845	126	N	-t	-1.4982	0.1142	-0.8959	96.8	-	-	14S	48W
2472	Sep 17	15:45:48	1063	270	5846	164	N	t-	1.2338	0.6167	-0.4280	222.4	-	-	1S	126E
2473	Feb 13	07:57:34	1065	271	5851	131	P	-a	0.8462	1.3335	0.2776	301.2	120.0	-	14N	111W
2473	Aug 08	16:24:05	1067	271	5857	136	P	-a	-0.6920	1.5675	0.6086	290.0	158.2	-	16S	120E
2474	Feb 02	10:11:04	1069	272	5863	141	T+	pp	0.1682	2.6000	1.4997	375.1	231.1	96.9	17N	145W
2474	Jul 29	09:15:37	1071	272	5869	146	T+	pp	0.0523	2.7324	1.7911	317.0	211.3	98.9	18S	133W

2475	Jan 22	09:16:57	1072	273	5875	151	P	t-	-0.5121	1.9665	0.8709	354.6	199.5	-	19N	132W
2475	Jul 19	01:34:31	1074	273	5881	156	P	a-	0.8097	1.3560	0.3886	280.0	132.1	-	20S	18W
2476	Jan 11	12:49:29	1076	274	5887	161	N	a-	-1.1672	0.7398	-0.3067	235.6	-	-	21N	174E
2476	Jun 08	00:28:50	1078	274	5892	128	N	-t	-1.1021	0.8606	-0.1884	259.6	-	-	24S	3W
2476	Dec 01	12:44:16	1080	274	5898	133	P	-a	0.9229	1.1502	0.1788	258.0	90.2	-	23N	171E
2477	May 28	01:49:58	1082	275	5904	138	T	-t	-0.3653	2.2254	1.1506	365.4	219.6	61.5	22S	23W
2477	Nov 21	04:40:33	1084	275	5910	143	T+	-p	0.2516	2.3824	1.4101	317.9	205.5	83.8	20N	69W
2478	May 17	03:13:37	1086	276	5916	148	T	t-	0.3883	2.1716	1.1200	352.5	212.9	54.3	19S	45W
2478	Nov 10	18:04:52	1088	276	5922	153	T	p-	-0.4598	2.0214	1.0075	325.6	195.9	13.4	17N	89E
2479	Apr 07	00:42:34	1089	277	5927	120	Ne	-a	-1.5403	0.0223	-0.9591	41.1	-	-	8S	6W
2479	May 06	10:53:13	1090	277	5928	158	N	a-	1.1070	0.8266	-0.1731	238.8	-	-	16S	159W
2479	Oct 31	01:02:53	1092	277	5934	163	N	t-	-1.2253	0.6434	-0.4234	229.9	-	-	13N	15W
2480	Mar 26	16:18:41	1093	278	5939	130	P	-a	-0.8242	1.3251	0.3658	269.6	125.1	-	4S	121E
2480	Sep 19	09:03:31	1095	278	5945	135	P	-t	0.9727	1.1107	0.0366	293.9	46.8	-	0S	133W
2481	Mar 16	08:05:58	1097	278	5951	140	T-	-p	-0.1415	2.5892	1.6071	325.9	212.4	95.0	1N	115W
2481	Sep 08	12:56:07	1099	279	5957	145	T+	pp	0.1967	2.5107	1.4838	349.5	221.9	93.7	5S	170E
2482	Mar 05	19:26:13	1101	279	5963	150	P	a-	0.5889	1.7965	0.7586	325.0	181.4	-	6N	76E
2482	Aug 29	00:10:15	1103	280	5969	155	P	a-	-0.5588	1.8180	0.8469	306.4	181.0	-	10S	3E
2483	Feb 22	23:24:23	1105	280	5975	160	N	t-	1.3340	0.4558	-0.6345	201.1	-	-	11N	17E
2483	Jul 20	09:38:02	1107	281	5980	127	N	-a	1.2374	0.5594	-0.3848	190.2	-	-	19S	138W
2483	Aug 18	16:25:11	1107	281	5981	165	N	a-	-1.2597	0.5182	-0.4252	183.1	-	-	14S	120E
2484	Jan 13	04:14:52	1109	281	5986	132	Nx	-t	-1.0125	1.0429	-0.0419	283.8	-	-	21N	57W
2484	Jul 09	01:00:41	1111	282	5992	137	P	-a	0.5261	1.8831	0.9020	314.6	187.6	-	22S	9W
2485	Jan 01	09:52:19	1113	282	5998	142	T	-p	-0.2801	2.3588	1.3297	338.9	212.3	80.2	23N	143W
2485	Jun 28	10:20:44	1115	282	6004	147	T-	pp	-0.2498	2.4177	1.3817	354.4	222.4	87.8	23S	149W
2485	Dec 21	22:24:26	1117	283	6010	152	T	a-	0.4123	2.0915	1.1111	312.3	194.2	48.3	24N	28E
2486	Jun 17	12:46:53	1119	283	6016	157	N	t-	-1.0329	0.9983	-0.0721	283.2	-	-	24S	173E
2486	Dec 11	14:07:09	1121	284	6022	162	N	a-	1.0695	0.8810	-0.0899	231.9	-	-	24N	151E
2487	May 07	23:59:40	1122	284	6027	129	N	-t	1.0517	0.9483	-0.0913	265.2	-	-	16S	4E
2487	Nov 01	15:47:25	1124	285	6033	134	P	-a	-0.9560	1.1180	0.0900	275.4	68.9	-	14N	124E
2488	Apr 26	09:36:09	1126	285	6039	139	T+	-p	0.2634	2.3681	1.3811	328.2	210.3	83.7	14S	140W
2488	Oct 20	20:46:18	1128	286	6045	144	T-	-p	-0.2544	2.4296	1.3534	366.0	225.3	86.3	11N	49E
2489	Apr 16	00:46:36	1130	286	6051	149	T	a-	-0.4585	1.9946	1.0386	304.6	189.1	29.0	11S	7W
2489	Oct 09	20:45:33	1132	287	6057	154	P	t-	0.4679	2.0423	0.9575	359.3	207.5	-	7N	50E
2490	Mar 07	06:48:58	1134	287	6062	121	N	-a	1.5005	0.1037	-0.8939	88.9	-	-	6N	94W
2490	Apr 05	17:09:25	1134	287	6063	159	N	a-	-1.1619	0.7102	-0.2582	213.8	-	-	8S	107E
2490	Sep 28	23:02:19	1136	287	6069	164	N	t-	1.1733	0.7278	-0.3169	238.3	-	-	4N	16E
2491	Feb 24	16:09:25	1138	288	6074	131	P	-a	0.8631	1.3029	0.2462	299.7	113.8	-	10N	126E
2491	Aug 19	23:52:19	1140	288	6080	136	P	-a	-0.7603	1.4419	0.4837	281.7	143.5	-	13S	8E
2492	Feb 13	18:09:19	1142	289	6086	141	T+	pp	0.1814	2.5753	1.4756	375.1	230.8	95.6	13N	96E

2492 Aug 08	16:47:16	1144	289	6092	146	T-	pp	-0.0196	2.7932	1.8505	317.4	211.6	99.4	16S	115E
2493 Feb 01	17:21:20	1146	290	6098	151	P	t-	-0.5016	1.9846	0.8916	354.6	200.8	-	16N	107E
2493 Jul 29	08:53:03	1148	290	6104	156	P	a-	0.7379	1.4892	0.5185	289.9	150.0	-	18S	127W
2494 Jan 21	21:17:43	1150	291	6110	161	N	a-	-1.1593	0.7526	-0.2906	236.5	-	-	19N	48E
2494 Jun 19	07:12:40	1152	291	6115	128	N	-t	-1.1830	0.7126	-0.3376	240.4	-	-	24S	103W
2494 Jul 18	19:45:11	1152	291	6116	166	Nb	t-	1.5604	0.0071	-1.0169	24.9	-	-	19S	70E
2494 Dec 12	21:27:42	1154	291	6121	133	P	-a	0.9325	1.1330	0.1609	256.3	85.7	-	24N	41E
2495 Jun 08	08:25:19	1156	292	6127	138	T	-t	-0.4447	2.0786	1.0059	360.1	211.2	12.8	23S	121W
2495 Dec 02	13:16:55	1158	292	6133	143	T+	-p	0.2671	2.3556	1.3798	318.1	204.8	81.6	22N	163E
2496 May 27	10:09:52	1160	293	6139	148	T	t-	0.3172	2.2994	1.2531	354.7	218.7	75.3	21S	148W
2496 Nov 21	02:19:03	1162	293	6145	153	T	p-	-0.4399	2.0606	1.0412	328.5	198.5	31.2	20N	34W
2497 May 16	18:23:07	1164	294	6151	158	N	a-	1.0464	0.9350	-0.0589	250.0	-	-	18S	89E
2497 Nov 10	08:44:48	1166	294	6157	163	N	t-	-1.1970	0.6982	-0.3741	239.1	-	-	16N	130W
2498 Apr 07	00:35:15	1168	295	6162	130	P	-a	-0.8577	1.2622	0.3058	264.9	115.4	-	8S	4W
2498 Sep 30	16:05:34	1170	295	6168	135	Nx	-t	1.0301	1.0061	-0.0695	282.5	-	-	4N	121E
2499 Mar 27	16:22:53	1172	296	6174	140	T-	-p	-0.1705	2.5358	1.5542	326.0	211.9	93.1	3S	120E
2499 Sep 19	20:14:16	1174	296	6180	145	T+	pp	0.2569	2.3999	1.3736	346.4	218.1	85.8	1S	60E
2500 Mar 17	03:30:26	1176	297	6186	150	P	h-	0.5665	1.8379	0.7997	328.0	185.5	-	2N	46W
2500 Sep 09	07:45:58	1178	297	6192	155	P	a-	-0.4957	1.9336	0.9629	310.4	188.6	-	6S	112W

26TH CENTURY CE

In the 26th century CE the total number of lunar eclipses will be 227 lunar eclipses: 82 penumbral lunar eclipses, 58 partial lunar eclipses, 87 total lunar eclipses (23 central total lunar eclipses, 64 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
	ECLIPSE														
2501 Mar 06	07:13:33	1180	297	6198	160	N	t-	1.3146	0.4910	-0.5984	208.3	-	-	7N	100W

2501 Jul 31	17:06:35	1181	298	6203	127	N	-a	1.3098	0.4275	-0.5185	168.7	-	-	17S	110E
2501 Aug 30	00:04:13	1182	298	6204	165	N	a-	-1.1958	0.6362	-0.3087	200.5	-	-	10S	5E
2502 Jan 24	12:26:38	1184	298	6209	132	Nx	-t	-1.0174	1.0327	-0.0495	281.9	-	-	18N	179W
2502 Jul 21	08:11:06	1186	299	6215	137	P	-a	0.6052	1.7397	0.7554	309.3	176.6	-	20S	116W
2503 Jan 13	18:27:06	1188	299	6221	142	T	-p	-0.2834	2.3513	1.3249	337.6	211.6	79.6	21N	90E
2503 Jul 10	17:04:24	1190	300	6227	147	T-	pp	-0.1673	2.5705	1.5318	358.3	227.0	97.7	22S	110E
2504 Jan 03	07:13:06	1192	300	6233	152	T	p-	0.4063	2.1022	1.1225	312.1	194.5	50.5	23N	103W
2504 Jun 28	19:14:32	1194	301	6239	157	P	t-	-0.9484	1.1531	0.0832	299.5	70.6	-	24S	77E
2504 Dec 22	22:54:39	1196	301	6245	162	N	a-	1.0628	0.8943	-0.0786	233.6	-	-	24N	21E
2505 May 19	07:09:44	1198	302	6250	129	N	-t	1.1113	0.8359	-0.1979	250.8	-	-	19S	103W
2505 Nov 12	23:47:36	1200	302	6256	134	P	-a	-0.9870	1.0642	0.0301	271.5	40.3	-	17N	4E
2506 May 08	17:18:29	1202	303	6262	139	T	-p	0.3159	2.2690	1.2876	324.6	206.6	75.1	17S	105E
2506 Nov 02	04:15:22	1204	303	6268	144	T	-p	-0.2946	2.3586	1.2772	365.7	222.8	78.8	14N	63W
2507 Apr 28	08:48:06	1206	303	6274	149	T	a-	-0.4117	2.0787	1.1261	306.9	193.6	51.1	14S	128W
2507 Oct 22	04:00:55	1208	304	6280	154	T	t-	0.4193	2.1326	1.0455	362.7	213.0	34.8	11N	59W
2508 Mar 18	15:08:40	1210	304	6285	121	N	-a	1.5273	0.0545	-0.9431	65.0	-	-	2N	140E
2508 Apr 17	01:15:48	1210	304	6286	159	N	a-	-1.1252	0.7769	-0.1905	222.5	-	-	12S	14W
2508 Oct 10	06:29:17	1212	305	6292	164	N	h-	1.1203	0.8250	-0.2196	250.5	-	-	8N	96W
2509 Mar 08	00:13:06	1214	305	6297	131	P	-h	0.8859	1.2613	0.2041	297.1	104.6	-	6N	5E
2509 Aug 31	07:27:36	1216	306	6303	136	P	-a	-0.8232	1.3262	0.3684	273.2	127.1	-	9S	106W
2510 Feb 25	02:01:13	1218	306	6309	141	T+	pp	0.1998	2.5410	1.4425	374.7	230.1	93.7	9N	22W
2510 Aug 21	00:21:35	1220	307	6315	146	T-	pp	-0.0891	2.6666	1.7219	317.3	210.9	97.7	12S	1E
2511 Feb 14	01:22:51	1222	307	6321	151	P	t-	-0.4880	2.0078	0.9182	354.6	202.5	-	13N	13W
2511 Aug 10	16:12:01	1224	308	6327	156	P	a-	0.6669	1.6216	0.6469	298.9	164.6	-	15S	123E
2512 Feb 03	05:43:53	1226	308	6333	161	N	a-	-1.1490	0.7697	-0.2696	237.8	-	-	16N	78W
2512 Jun 30	13:51:09	1228	309	6338	128	N	-t	-1.2674	0.5588	-0.4931	216.7	-	-	24S	159E
2512 Jul 30	02:35:50	1228	309	6339	166	N	t-	1.4873	0.1431	-0.8849	110.7	-	-	17S	32W
2512 Dec 24	06:15:45	1230	309	6344	133	P	-a	0.9389	1.1213	0.1489	255.1	82.5	-	24N	89W
2513 Jun 19	14:55:55	1232	309	6350	138	P	-t	-0.5279	1.9250	0.8542	353.3	200.1	-	24S	142E
2513 Dec 13	21:58:13	1234	310	6356	143	T	-p	0.2784	2.3366	1.3576	318.5	204.3	79.8	23N	34E
2514 Jun 08	17:01:21	1236	310	6362	148	T+	p-	0.2410	2.4367	1.3952	356.3	223.4	89.1	23S	110E
2514 Dec 03	10:39:14	1238	311	6368	153	T	p-	-0.4258	2.0892	1.0645	330.9	200.3	38.8	22N	157W
2515 May 29	01:46:14	1241	311	6374	158	P	a-	0.9791	1.0557	0.0672	261.1	58.4	-	21S	22W
2515 Nov 22	16:34:45	1243	312	6380	163	N	t-	-1.1755	0.7403	-0.3373	246.1	-	-	19N	113E
2516 Apr 18	08:44:24	1244	312	6385	130	P	-a	-0.8975	1.1878	0.2341	259.0	102.0	-	12S	126W
2516 Oct 11	23:16:59	1246	313	6391	135	N	-t	1.0803	0.9147	-0.1624	271.6	-	-	8N	12E
2517 Apr 08	00:32:50	1249	313	6397	140	T-	-p	-0.2049	2.4726	1.4914	325.9	211.1	90.2	7S	3W
2517 Oct 01	03:41:06	1251	314	6403	145	T	-p	0.3109	2.3006	1.2748	343.0	213.9	76.0	4N	53W
2518 Mar 28	11:27:41	1253	314	6409	150	P	t-	0.5390	1.8884	0.8499	331.3	190.1	-	3S	165W
2518 Sep 20	15:27:26	1255	315	6415	155	T	a-	-0.4369	2.0414	1.0708	313.5	194.5	39.6	1S	132E

2519	Mar 17	14:56:26	1257	315	6421	160	N	t-	1.2905	0.5346	-0.5535	216.7	-	-	2N	143E
2519	Aug 12	00:36:41	1259	316	6426	127	N	-a	1.3802	0.2995	-0.6489	143.2	-	-	14S	3W
2519	Sep 10	07:48:22	1259	316	6427	165	N	a-	-1.1363	0.7463	-0.2006	214.9	-	-	6S	112W
2520	Feb 04	20:36:25	1261	316	6432	132	Nx	-t	-1.0243	1.0184	-0.0604	279.6	-	-	15N	59E
2520	Jul 31	15:22:35	1263	317	6438	137	P	-a	0.6823	1.6002	0.6119	303.1	163.3	-	17S	136E
2521	Jan 24	03:01:28	1265	317	6444	142	T	-p	-0.2873	2.3425	1.3194	336.1	210.9	78.9	19N	37W
2521	Jul 20	23:47:31	1267	317	6450	147	T-	pp	-0.0849	2.7233	1.6815	361.2	230.0	103.3	20S	10E
2522	Jan 13	16:02:18	1269	318	6456	152	T	p-	0.4007	2.1119	1.1334	311.9	194.8	52.4	22N	127E
2522	Jul 10	01:40:37	1272	318	6462	157	P	t-	-0.8624	1.3107	0.2410	313.9	117.4	-	23S	18W
2523	Jan 03	07:44:08	1274	319	6468	162	N	a-	1.0579	0.9041	-0.0705	235.0	-	-	24N	110W
2523	May 30	14:13:12	1275	319	6473	129	N	-t	1.1768	0.7131	-0.3152	233.4	-	-	21S	152E
2523	Nov 24	07:55:23	1278	320	6479	134	Nx	-a	-1.0111	1.0229	-0.0168	268.5	-	-	19N	117W
2524	May 19	00:54:01	1280	320	6485	139	T	-p	0.3745	2.1588	1.1826	320.4	201.7	61.8	19S	9W
2524	Nov 12	11:52:57	1282	321	6491	144	T	-p	-0.3271	2.3013	1.2151	365.3	220.5	71.0	18N	177W
2525	May 08	16:42:28	1284	321	6497	149	T	p-	-0.3589	2.1740	1.2245	309.3	198.0	66.0	18S	114E
2525	Nov 01	11:26:29	1286	322	6503	154	T	t-	0.3790	2.2077	1.1183	365.1	217.0	54.7	15N	171W
2526	Apr 28	09:13:27	1288	322	6509	159	N	a-	-1.0819	0.8561	-0.1105	232.1	-	-	15S	134W
2526	Oct 21	14:05:39	1290	323	6515	164	N	h-	1.0739	0.9100	-0.1347	260.0	-	-	12N	150E
2527	Mar 19	08:09:28	1292	323	6520	131	P	-h	0.9141	1.2096	0.1524	293.4	91.3	-	1N	115W
2527	Sep 11	15:08:19	1294	324	6526	136	P	-a	-0.8823	1.2181	0.2599	264.6	108.3	-	5S	138E
2528	Mar 07	09:46:45	1296	324	6532	141	T+	pp	0.2233	2.4969	1.4002	374.0	229.1	90.8	5N	139W
2528	Aug 31	08:00:18	1299	325	6538	146	T-	-p	-0.1549	2.5470	1.5998	316.7	209.4	94.1	8S	114W
2529	Feb 24	09:21:24	1301	325	6544	151	P	t-	-0.4712	2.0366	0.9509	354.7	204.5	-	9N	132W
2529	Aug 20	23:32:22	1303	326	6550	156	P	a-	0.5976	1.7509	0.7719	306.8	176.6	-	11S	13E
2530	Feb 13	14:09:09	1305	326	6556	161	N	a-	-1.1371	0.7892	-0.2457	239.4	-	-	12N	156E
2530	Jul 11	20:27:09	1307	326	6561	128	N	-t	-1.3527	0.4032	-0.6507	187.4	-	-	23S	61E
2530	Aug 10	09:26:43	1307	327	6562	166	N	t-	1.4146	0.2787	-0.7535	153.3	-	-	14S	135W
2531	Jan 04	15:06:27	1309	327	6567	133	P	-a	0.9434	1.1130	0.1407	254.2	80.2	-	24N	140E
2531	Jun 30	21:23:31	1311	327	6573	138	P	-t	-0.6135	1.7672	0.6980	345.0	185.7	-	24S	46E
2531	Dec 25	06:43:02	1313	328	6579	143	T	-p	0.2866	2.3230	1.3412	319.0	204.1	78.5	24N	96W
2532	Jun 18	23:51:42	1315	328	6585	148	T+	pp	0.1630	2.5776	1.5406	357.1	226.5	97.9	23S	8E
2532	Dec 13	19:02:43	1318	329	6591	153	T	p-	-0.4148	2.1118	1.0823	333.0	201.8	43.7	23N	78E
2533	Jun 08	09:07:45	1320	329	6597	158	P	a-	0.9094	1.1812	0.1976	271.3	98.1	-	22S	131W
2533	Dec 03	00:30:09	1322	330	6603	163	N	t-	-1.1584	0.7740	-0.3082	251.6	-	-	21N	5W
2534	Apr 29	16:45:46	1324	330	6608	130	P	-a	-0.9440	1.1014	0.1501	251.7	82.7	-	16S	113E
2534	Oct 23	06:38:01	1326	331	6614	135	N	-t	1.1231	0.8369	-0.2416	261.5	-	-	12N	98W
2535	Apr 19	08:32:59	1328	331	6620	140	T-	-p	-0.2471	2.3949	1.4141	325.4	209.6	85.6	11S	123W
2535	Oct 12	11:18:36	1330	332	6626	145	T	-p	0.3568	2.2163	1.1907	339.6	209.6	65.0	8N	168W
2536	Apr 07	19:13:17	1332	332	6632	150	P	t-	0.5027	1.9551	0.9165	335.3	195.7	-	7S	78E
2536	Sep 30	23:18:42	1335	333	6638	155	T	a-	-0.3856	2.1357	1.1648	315.7	198.7	58.5	3N	13E

2537	Mar 27	22:29:42	1337	333	6644	160	N	t-	1.2589	0.5917	-0.4948	226.9	-	-	2S	30E
2537	Aug 22	08:09:05	1339	334	6649	127	N	-a	1.4484	0.1758	-0.7756	111.2	-	-	10S	116W
2537	Sep 20	15:38:05	1339	334	6650	165	N	a-	-1.0812	0.8486	-0.1008	226.9	-	-	2S	130E
2538	Feb 15	04:44:29	1341	334	6655	132	Nx	-t	-1.0330	1.0002	-0.0745	276.7	-	-	12N	62W
2538	Aug 11	22:33:30	1343	335	6661	137	P	-a	0.7588	1.4619	0.4693	295.8	146.7	-	14S	29E
2539	Feb 04	11:35:57	1345	335	6667	142	T	-p	-0.2922	2.3316	1.3124	334.6	210.1	78.1	16N	165W
2539	Aug 01	06:28:16	1347	336	6673	147	T-	pp	-0.0011	2.8787	1.8334	363.1	231.3	105.3	18S	90W
2540	Jan 25	00:52:54	1350	336	6679	152	T	p-	0.3958	2.1200	1.1433	311.6	195.0	54.1	20N	5W
2540	Jul 20	08:06:20	1352	337	6685	157	P	t-	-0.7756	1.4701	0.4002	326.5	147.7	-	21S	114W
2541	Jan 13	16:35:02	1354	337	6691	162	N	a-	1.0544	0.9112	-0.0648	236.0	-	-	22N	119E
2541	Jun 09	21:15:07	1356	337	6696	129	N	-t	1.2441	0.5869	-0.4362	213.5	-	-	22S	47E
2541	Jul 09	09:38:27	1356	338	6697	167	Nb	t-	-1.5025	0.1244	-0.9218	105.8	-	-	24S	137W
2541	Dec 04	16:08:20	1358	338	6702	134	N	-a	-1.0301	0.9907	-0.0544	266.3	-	-	21N	121E
2542	May 30	08:25:20	1360	338	6708	139	T	-a	0.4375	2.0407	1.0694	315.4	195.5	39.4	21S	121W
2542	Nov 23	19:36:59	1362	339	6714	144	T	-t	-0.3540	2.2541	1.1635	365.0	218.3	63.1	20N	68E
2543	May 20	00:31:06	1365	339	6720	149	T	p-	-0.3011	2.2786	1.3318	311.6	202.1	77.5	20S	3W
2543	Nov 12	19:00:49	1367	340	6726	154	T	t-	0.3451	2.2709	1.1797	366.8	219.8	66.0	18N	76E
2544	May 08	17:03:17	1369	340	6732	159	N	a-	-1.0325	0.9466	-0.0197	242.3	-	-	18S	109E
2544	Oct 31	21:52:24	1371	341	6738	164	N	h-	1.0350	0.9815	-0.0632	267.3	-	-	15N	33E
2545	Mar 29	15:56:32	1373	341	6743	131	P	-h	0.9494	1.1448	0.0877	288.2	70.1	-	3S	128E
2545	Sep 21	22:55:49	1375	342	6749	136	P	-a	-0.9363	1.1192	0.1604	256.0	86.1	-	1S	21E
2546	Mar 18	17:24:15	1378	342	6755	141	T+	-p	0.2535	2.4405	1.3461	372.8	227.5	86.4	1N	107E
2546	Sep 11	15:43:55	1380	343	6761	146	T-	-p	-0.2167	2.4352	1.4850	315.7	207.1	88.7	4S	129E
2547	Mar 07	17:12:47	1382	343	6767	151	P	t-	-0.4479	2.0769	0.9959	355.2	207.1	-	5N	110E
2547	Sep 01	06:56:13	1384	344	6773	156	P	a-	0.5317	1.8743	0.8903	313.8	186.4	-	8S	98W
2548	Feb 24	22:29:42	1386	344	6779	161	N	a-	-1.1206	0.8170	-0.2130	241.9	-	-	8N	31E
2548	Jul 22	03:01:34	1388	345	6784	128	N	-t	-1.4382	0.2475	-0.8089	149.3	-	-	21S	37W
2548	Aug 20	16:19:57	1389	345	6785	166	N	t-	1.3441	0.4105	-0.6265	184.5	-	-	11S	121E
2549	Jan 14	23:58:00	1390	345	6790	133	P	-a	0.9478	1.1047	0.1329	253.3	78.0	-	22N	9E
2549	Jul 11	03:50:10	1393	346	6796	138	P	-t	-0.7001	1.6078	0.5398	335.2	167.6	-	23S	50W
2550	Jan 04	15:30:59	1395	346	6802	143	T	-p	0.2921	2.3140	1.3298	319.5	204.0	77.6	23N	134E
2550	Jun 30	06:38:41	1397	347	6808	148	T+	pp	0.0810	2.7258	1.6930	357.0	228.2	103.0	23S	93W
2550	Dec 25	03:31:02	1399	347	6814	153	T	p-	-0.4084	2.1257	1.0919	334.8	202.9	46.1	23N	47W
2551	Jun 19	16:25:15	1402	348	6820	158	P	a-	0.8350	1.3154	0.3362	280.8	125.1	-	23S	120E
2551	Dec 14	08:31:19	1404	348	6826	163	N	t-	-1.1463	0.7982	-0.2881	255.6	-	-	22N	124W
2552	May 10	00:40:12	1406	349	6831	130	P	-a	-0.9962	1.0045	0.0554	242.9	50.9	-	19S	5W
2552	Jun 08	07:57:01	1406	349	6832	168	Nb	a-	1.5204	0.0408	-0.9048	53.9	-	-	21S	113W
2552	Nov 02	14:09:20	1408	349	6837	135	N	-t	1.1582	0.7731	-0.3067	252.6	-	-	16N	149E
2553	Apr 29	16:26:23	1410	350	6843	140	T	-p	-0.2943	2.3082	1.3275	324.5	207.4	78.8	15S	119E
2553	Oct 22	19:04:09	1412	350	6849	145	T	-p	0.3969	2.1425	1.1171	336.3	205.3	52.0	12N	76E

2554 Apr 19	02:51:31	1415	351	6855	150	P	t-	0.4610	2.0316	0.9930	339.3	201.4	-	11S	37W
2554 Oct 12	07:17:07	1417	351	6861	155	T	p-	-0.3398	2.2201	1.2486	317.4	201.9	69.7	7N	107W
2555 Apr 08	05:53:57	1419	352	6867	160	N	t-	1.2203	0.6616	-0.4229	238.5	-	-	6S	82W
2555 Sep 02	15:45:53	1421	352	6872	127	Ne	-a	1.5127	0.0596	-0.8952	65.6	-	-	6S	129E
2555 Oct 01	23:35:10	1421	352	6873	165	N	a-	-1.0323	0.9399	-0.0125	236.7	-	-	2N	10E
2556 Feb 26	12:48:06	1423	353	6878	132	N	-t	-1.0460	0.9741	-0.0960	272.8	-	-	8N	177E
2556 Aug 22	05:48:03	1426	353	6884	137	P	-a	0.8316	1.3308	0.3334	287.9	126.6	-	11S	80W
2557 Feb 14	20:06:28	1428	354	6890	142	T	-p	-0.3009	2.3134	1.2985	332.8	209.1	76.6	12N	68E
2557 Aug 11	13:11:55	1430	354	6896	147	T+	pp	0.0795	2.7369	1.6878	364.1	231.1	103.8	15S	170E
2558 Feb 04	09:41:28	1432	355	6902	152	T	p-	0.3892	2.1312	1.1564	311.4	195.5	56.3	17N	136W
2558 Jul 31	14:32:24	1435	355	6908	157	P	t-	-0.6888	1.6297	0.5591	337.4	170.3	-	19S	150E
2559 Jan 25	01:25:28	1437	356	6914	162	N	a-	1.0511	0.9177	-0.0591	237.0	-	-	20N	12W
2559 Jun 21	04:13:09	1439	356	6919	129	N	-t	1.3147	0.4549	-0.5634	189.5	-	-	22S	56W
2559 Jul 20	16:18:31	1439	356	6920	167	N	t-	-1.4180	0.2781	-0.7653	155.4	-	-	22S	123E
2559 Dec 16	00:26:01	1441	357	6925	134	N	-a	-1.0446	0.9665	-0.0832	264.7	-	-	22N	2W
2560 Jun 09	15:52:07	1443	357	6931	139	P	-a	0.5048	1.9152	0.9481	309.6	187.8	-	22S	128E
2560 Dec 04	03:28:37	1446	358	6937	144	T	-t	-0.3740	2.2194	1.1249	364.9	216.6	55.9	22N	49W
2561 May 30	08:13:36	1448	358	6943	149	T-	p-	-0.2381	2.3932	1.4486	313.6	205.7	86.4	22S	118W
2561 Nov 23	02:43:38	1450	359	6949	154	T	p-	0.3178	2.3217	1.2289	367.9	221.8	73.1	21N	39W
2562 May 20	00:45:21	1452	359	6955	159	P	a-	-0.9773	1.0478	0.0817	252.7	62.8	-	21S	6W
2562 Nov 12	05:48:43	1455	360	6961	164	Nx	a-	1.0030	1.0402	-0.0044	272.6	-	-	19N	86W
2563 Apr 09	23:33:31	1457	360	6966	131	P	-t	0.9920	1.0664	0.0097	281.3	23.6	-	7S	13E
2563 Oct 03	06:51:06	1459	360	6972	136	P	-a	-0.9843	1.0317	0.0718	247.8	58.2	-	3N	99W
2564 Mar 29	00:54:04	1461	361	6978	141	T	-p	0.2895	2.3730	1.2812	371.2	225.3	79.9	3S	6W
2564 Sep 21	23:33:14	1463	361	6984	146	T	-p	-0.2733	2.3331	1.3794	314.5	204.3	81.6	0S	11E
2565 Mar 18	00:59:20	1466	362	6990	151	T	t-	-0.4202	2.1253	1.0493	355.7	210.1	35.7	1N	7W
2565 Sep 11	14:24:10	1468	362	6996	156	T	a-	0.4699	1.9903	1.0010	319.8	194.3	4.9	4S	149E
2566 Mar 07	06:46:49	1470	363	7002	161	N	a-	-1.1006	0.8509	-0.1737	245.0	-	-	4N	93W
2566 Aug 02	09:35:06	1472	363	7007	128	Ne	-t	-1.5234	0.0927	-0.9664	92.9	-	-	19S	135W
2566 Aug 31	23:15:17	1473	364	7008	166	N	t-	1.2755	0.5389	-0.5032	209.8	-	-	7S	17E
2567 Jan 26	08:49:55	1475	364	7013	133	P	-a	0.9522	1.0962	0.1253	252.4	75.8	-	20N	123W
2567 Jul 22	10:17:24	1477	364	7019	138	P	-t	-0.7863	1.4492	0.3820	323.9	144.4	-	21S	146W
2568 Jan 16	00:18:32	1479	365	7025	143	T	-p	0.2978	2.3046	1.3184	320.0	203.9	76.7	21N	4E
2568 Jul 10	13:27:43	1481	365	7031	148	T-	pp	-0.0002	2.8723	1.8431	355.9	228.4	104.5	22S	166E
2569 Jan 04	12:00:27	1484	366	7037	153	T	p-	-0.4031	2.1373	1.0998	336.5	203.8	48.0	22N	173W
2569 Jun 29	23:42:25	1486	366	7043	158	P	a-	0.7595	1.4519	0.4767	289.2	145.4	-	22S	12E
2569 Dec 24	16:35:15	1488	367	7049	163	N	t-	-1.1366	0.8177	-0.2720	259.0	-	-	22N	117E
2570 May 21	08:28:00	1490	367	7054	130	N	-a	-1.0540	0.8976	-0.0498	232.3	-	-	21S	122W
2570 Jun 19	15:30:28	1491	367	7055	168	N	a-	1.4525	0.1643	-0.7792	106.8	-	-	22S	134E
2570 Nov 13	21:50:10	1493	368	7060	135	N	-t	1.1860	0.7226	-0.3582	245.0	-	-	19N	34E

2571	May 11	00:09:04	1495	368	7066	140	T	-a	-0.3499	2.2063	1.2255	322.9	204.0	67.9	18S	3E
2571	Nov 03	03:00:59	1497	369	7072	145	T	-p	0.4286	2.0843	1.0591	333.3	201.6	37.5	15N	43W
2572	Apr 29	10:18:26	1500	369	7078	150	T	p-	0.4106	2.1241	1.0854	343.7	207.6	45.6	14S	149W
2572	Oct 22	15:24:51	1502	370	7084	155	T	p-	-0.3012	2.2914	1.3191	318.5	204.2	77.0	11N	131E
2573	Apr 18	13:08:27	1504	370	7090	160	N	t-	1.1738	0.7458	-0.3366	251.3	-	-	10S	169E
2573	Oct 12	07:39:25	1507	371	7096	165	P	a-	-0.9892	1.0205	0.0650	244.8	55.1	-	7N	112W
2574	Mar 08	20:47:05	1508	371	7101	132	N	-t	-1.0632	0.9399	-0.1250	267.9	-	-	4N	57E
2574	Sep 02	13:03:40	1511	372	7107	137	P	-a	0.9024	1.2037	0.2008	279.0	100.5	-	7S	170E
2575	Feb 26	04:34:52	1513	372	7113	142	T	-p	-0.3120	2.2905	1.2804	331.0	207.9	74.6	8N	59W
2575	Aug 22	19:56:30	1515	373	7119	147	T+	pp	0.1584	2.5942	1.5407	364.1	229.4	98.8	11S	68E
2576	Feb 15	18:27:31	1518	373	7125	152	T	p-	0.3803	2.1462	1.1740	311.3	196.1	59.0	13N	93E
2576	Aug 10	21:01:24	1520	374	7131	157	P	t-	-0.6041	1.7855	0.7140	346.5	187.5	-	16S	53E
2577	Feb 04	10:14:48	1522	375	7137	162	N	a-	1.0475	0.9245	-0.0528	238.1	-	-	17N	144W
2577	Jul 01	11:11:06	1524	375	7142	129	N	-t	1.3861	0.3218	-0.6922	160.7	-	-	22S	160W
2577	Jul 30	23:01:12	1525	375	7143	167	N	t-	-1.3341	0.4308	-0.6103	190.1	-	-	19S	23E
2577	Dec 26	08:46:25	1527	375	7148	134	N	-a	-1.0561	0.9474	-0.1066	263.6	-	-	22N	125W
2578	Jun 20	23:17:03	1529	376	7154	139	P	-a	0.5742	1.7859	0.8227	303.0	178.4	-	23S	18E
2578	Dec 15	11:24:37	1531	376	7160	144	T	-t	-0.3904	2.1910	1.0932	364.8	215.1	48.8	23N	166W
2579	Jun 10	15:51:24	1534	377	7166	149	T-	p-	-0.1708	2.5157	1.5729	315.3	208.5	92.9	23S	129E
2579	Dec 04	10:34:11	1536	378	7172	154	T	p-	0.2963	2.3616	1.2679	368.6	223.2	77.8	22N	155W
2580	May 30	08:21:35	1538	378	7178	159	P	a-	-0.9176	1.1574	0.1909	263.1	94.8	-	23S	120W
2580	Nov 22	13:52:56	1541	379	7184	164	P	a-	0.9765	1.0884	0.0443	276.6	49.2	-	21N	154E
2581	Apr 20	07:01:03	1543	379	7189	131	N	-t	1.0415	0.9754	-0.0810	272.3	-	-	11S	99W
2581	Oct 13	14:54:29	1545	379	7195	136	N	-a	-1.0260	0.9559	-0.0054	240.2	-	-	7N	140E
2582	Apr 09	08:13:57	1547	380	7201	141	T	-t	0.3338	2.2904	1.2016	368.8	221.9	69.7	7S	117W
2582	Oct 03	07:29:01	1550	381	7207	146	T	-p	-0.3244	2.2414	1.2838	313.1	201.2	73.0	4N	108W
2583	Mar 29	08:37:37	1552	381	7213	151	T	t-	-0.3849	2.1873	1.1168	356.4	213.5	53.7	4S	122W
2583	Sep 22	21:58:04	1555	382	7219	156	T	p-	0.4136	2.0966	1.1016	325.0	200.5	47.9	0N	35E
2584	Mar 17	14:56:22	1557	382	7225	161	N	a-	-1.0736	0.8977	-0.1212	249.4	-	-	0S	144E
2584	Sep 11	06:16:11	1559	383	7231	166	N	t-	1.2116	0.6589	-0.3886	230.2	-	-	3S	89W
2585	Feb 05	17:40:15	1561	383	7236	133	P	-a	0.9586	1.0838	0.1142	251.1	72.4	-	17N	105E
2585	Aug 01	16:45:33	1564	384	7242	138	P	-t	-0.8718	1.2920	0.2252	310.9	113.4	-	18S	117E
2586	Jan 26	09:06:32	1566	384	7248	143	T	-p	0.3030	2.2959	1.3082	320.6	203.9	75.8	19N	127W
2586	Jul 21	20:16:44	1568	385	7254	148	T-	pp	-0.0827	2.7194	1.6934	353.9	227.0	102.6	20S	64E
2587	Jan 15	20:31:04	1571	385	7260	153	T	p-	-0.3996	2.1453	1.1047	338.0	204.6	49.2	21N	61E
2587	Jul 11	06:58:10	1573	386	7266	158	P	a-	0.6818	1.5927	0.6209	296.7	161.8	-	21S	96W
2588	Jan 05	00:42:50	1575	386	7272	163	N	t-	-1.1301	0.8310	-0.2614	261.3	-	-	22N	3W
2588	May 31	16:10:44	1577	387	7277	130	N	-a	-1.1158	0.7835	-0.1627	219.7	-	-	23S	124E
2588	Jun 29	23:02:14	1578	387	7278	168	N	a-	1.3831	0.2910	-0.6509	140.3	-	-	22S	22E
2588	Nov 24	05:39:07	1580	387	7283	135	N	-t	1.2079	0.6828	-0.3986	238.7	-	-	22N	82W

2589	May 21	07:45:59	1582	388	7289	140	T	-a	-0.4097	2.0968	1.1155	320.6	199.5	50.5	21S	111W
2589	Nov 13	11:05:59	1585	388	7295	145	T	-p	0.4545	2.0366	1.0117	330.6	198.2	16.8	19N	164W
2590	May 10	17:36:54	1587	389	7301	150	T	p-	0.3540	2.2281	1.1892	348.0	213.5	65.9	18S	102E
2590	Nov 02	23:40:10	1589	389	7307	155	T-	p-	-0.2684	2.3519	1.3787	319.3	205.7	81.9	15N	7E
2591	Apr 29	20:14:10	1592	390	7313	160	N	t-	1.1201	0.8433	-0.2369	264.7	-	-	14S	63E
2591	Oct 23	15:51:11	1594	390	7319	165	P	a-	-0.9525	1.0895	0.1307	251.3	77.4	-	11N	125E
2592	Mar 19	04:38:52	1596	391	7324	132	N	-t	-1.0868	0.8937	-0.1656	261.4	-	-	1S	62W
2592	Sep 12	20:25:17	1599	391	7330	137	P	-a	0.9673	1.0875	0.0790	269.8	64.3	-	3S	59E
2593	Mar 08	12:57:30	1601	392	7336	142	T	-p	-0.3285	2.2578	1.2527	328.8	206.3	71.4	4N	175E
2593	Sep 02	02:44:47	1603	392	7342	147	T+	pp	0.2336	2.4586	1.4005	363.3	226.2	90.3	7S	34W
2594	Feb 26	03:08:52	1606	393	7348	152	T	p-	0.3674	2.1684	1.1989	311.4	197.1	62.6	9N	37W
2594	Aug 22	03:34:20	1608	393	7354	157	P	t-	-0.5225	1.9361	0.8633	353.9	200.8	-	12S	46W
2595	Feb 15	18:59:20	1611	394	7360	162	N	a-	1.0403	0.9377	-0.0396	239.8	-	-	13N	85E
2595	Jul 12	18:08:11	1613	394	7365	129	N	-t	1.4587	0.1867	-0.8235	123.4	-	-	20S	96E
2595	Aug 11	05:47:47	1613	394	7366	167	N	t-	-1.2521	0.5804	-0.4588	216.8	-	-	16S	78W
2596	Jan 06	17:09:02	1615	395	7371	134	N	-a	-1.0653	0.9324	-0.1251	262.9	-	-	21N	111E
2596	Jul 01	06:40:07	1617	395	7377	139	P	-a	0.6458	1.6529	0.6929	295.4	166.9	-	22S	92W
2596	Dec 25	19:24:42	1620	396	7383	144	T	-t	-0.4030	2.1691	1.0687	364.7	213.9	42.3	23N	75E
2597	Jun 20	23:25:24	1622	396	7389	149	T-	pp	-0.1004	2.6443	1.7026	316.5	210.5	97.3	23S	16E
2597	Dec 14	18:32:05	1625	397	7395	154	T	p-	0.2805	2.3908	1.2966	368.8	224.0	80.9	23N	87E
2598	Jun 10	15:49:58	1627	397	7401	159	P	a-	-0.8521	1.2779	0.3106	273.6	119.1	-	24S	129E
2598	Dec 03	22:06:08	1629	398	7407	164	P	a-	0.9568	1.1244	0.0810	279.2	66.0	-	23N	32E
2599	May 01	14:18:44	1631	398	7412	131	N	-t	1.0979	0.8717	-0.1843	260.8	-	-	14S	152E
2599	Oct 24	23:06:07	1634	399	7418	136	N	-a	-1.0614	0.8916	-0.0712	233.3	-	-	11N	17E
2600	Apr 20	15:25:39	1636	399	7424	141	T	-t	0.3845	2.1956	1.1100	365.6	217.3	53.1	11S	135E
2600	Oct 14	15:31:57	1639	400	7430	146	T	-p	-0.3691	2.1613	1.1997	311.7	197.9	63.0	8N	131E

27TH CENTURY CE

In the 27th century CE the total number of lunar eclipses will be 230 lunar eclipses: 81 penumbral lunar eclipses, 70 partial lunar eclipses, 79 total lunar eclipses (35 central total lunar eclipses, 44 non-central total lunar eclipses).

	CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
	DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
		GREATEST		S								m	m	m	°	°
		ECLIPSE														
2601	Apr 09	16:10:37	1641	400	7436	151	T	t-	-0.3445	2.2587	1.1938	357.1	216.9	67.3	8S	124E
2601	Oct 04	05:36:12	1644	401	7442	156	T	p-	0.3614	2.1953	1.1944	329.5	205.6	64.4	5N	80W
2602	Mar 29	23:01:35	1646	402	7448	161	N	a-	-1.0422	0.9522	-0.0607	254.3	-	-	4S	22E
2602	Sep 23	13:21:47	1648	402	7454	166	N	t-	1.1517	0.7716	-0.2815	247.4	-	-	1N	164E
2603	Feb 18	02:26:57	1650	403	7459	133	P	-a	0.9680	1.0657	0.0977	249.3	67.1	-	13N	26W
2603	Aug 13	23:17:49	1653	403	7465	138	P	-t	-0.9540	1.1412	0.0745	296.7	66.5	-	15S	19E
2604	Feb 07	17:51:08	1655	404	7471	143	T	-p	0.3107	2.2823	1.2935	321.0	203.8	74.5	16N	102E
2604	Aug 02	03:10:27	1658	404	7477	148	T-	pp	-0.1620	2.5725	1.5493	351.1	224.1	97.5	18S	39W
2605	Jan 27	04:58:55	1660	405	7483	153	T	p-	-0.3943	2.1562	1.1130	339.6	205.6	51.1	18N	65W
2605	Jul 22	14:16:20	1663	405	7489	158	P	a-	0.6052	1.7319	0.7629	303.0	174.7	-	20S	155E
2606	Jan 16	08:50:16	1665	406	7495	163	N	t-	-1.1238	0.8437	-0.2507	263.6	-	-	20N	124W
2606	Jun 12	23:46:41	1667	406	7500	130	N	-a	-1.1831	0.6596	-0.2858	204.3	-	-	24S	11E
2606	Jul 12	06:31:05	1668	406	7501	168	N	a-	1.3109	0.4230	-0.5180	166.9	-	-	21S	89W
2606	Dec 06	13:36:24	1670	407	7506	135	N	-t	1.2236	0.6541	-0.4274	233.8	-	-	23N	160E
2607	Jun 02	15:13:53	1672	407	7512	140	P	-a	-0.4766	1.9745	0.9922	317.4	193.1	-	23S	138E
2607	Nov 25	19:20:16	1674	408	7518	145	P	-p	0.4735	2.0014	0.9771	328.2	195.4	-	21N	73E
2608	May 22	00:45:15	1677	408	7524	150	T	pp	0.2896	2.3465	1.3070	352.2	219.1	80.7	20S	5W
2608	Nov 14	08:04:31	1679	409	7530	155	T-	p-	-0.2426	2.3998	1.4257	319.7	206.7	85.1	18N	118W
2609	May 11	03:10:48	1682	409	7536	160	N	t-	1.0591	0.9541	-0.1240	278.5	-	-	17S	41W
2609	Nov 04	00:09:38	1684	410	7542	165	P	a-	-0.9216	1.1480	0.1858	256.7	91.6	-	14N	1E
2610	Mar 31	12:25:13	1686	410	7547	132	N	-t	-1.1154	0.8384	-0.2150	253.6	-	-	5S	179W
2610	Sep 25	03:50:44	1689	411	7553	137	N	-a	1.0278	0.9795	-0.0351	260.3	-	-	2N	53W
2611	Mar 20	21:14:31	1691	411	7559	142	T	-p	-0.3503	2.2151	1.2155	326.3	204.3	66.6	0S	50E
2611	Sep 14	09:37:34	1694	412	7565	147	T	-t	0.3043	2.3314	1.2684	361.8	221.9	77.8	3S	138W
2612	Mar 09	11:45:50	1696	412	7571	152	T	p-	0.3508	2.1974	1.2309	311.7	198.3	66.7	5N	167W
2612	Sep 02	10:12:34	1699	413	7577	157	T	t-	-0.4446	2.0796	1.0053	359.9	210.9	12.1	8S	146W
2613	Feb 27	03:40:01	1701	414	7583	162	N	a-	1.0305	0.9556	-0.0215	242.0	-	-	9N	45W
2613	Jul 24	01:08:14	1703	414	7588	129	Ne	-t	1.5293	0.0554	-0.9514	67.7	-	-	18S	8W
2613	Aug 22	12:40:05	1704	414	7589	167	N	t-	-1.1735	0.7238	-0.3138	237.9	-	-	13S	178E
2614	Jan 18	01:31:42	1706	415	7594	134	N	-a	-1.0736	0.9187	-0.1419	262.2	-	-	20N	14W
2614	Jul 13	14:02:28	1708	415	7600	139	P	-a	0.7184	1.5183	0.5611	287.0	153.0	-	21S	158E
2615	Jan 07	03:27:04	1711	416	7606	144	T	-t	-0.4133	2.1511	1.0489	364.7	213.0	35.9	22N	44W
2615	Jul 03	06:57:18	1713	416	7612	149	T-	pp	-0.0285	2.7760	1.8348	317.2	211.6	99.3	23S	96W
2615	Dec 27	02:33:55	1716	417	7618	154	T+	p-	0.2678	2.4140	1.3202	368.7	224.5	83.2	24N	32W
2616	Jun 21	23:14:51	1718	417	7624	159	P	a-	-0.7845	1.4028	0.4341	283.4	138.7	-	24S	19E

2616	Dec 15	06:25:29	1721	418	7630	164	P	a-	0.9418	1.1513	0.1091	280.8	76.0	-	24N	91W
2617	May 12	21:27:22	1723	418	7635	131	N	-t	1.1608	0.7562	-0.2996	246.4	-	-	17S	45E
2617	Nov 05	07:25:06	1725	419	7641	136	N	-a	-1.0912	0.8379	-0.1265	227.2	-	-	15N	108W
2618	May 01	22:28:03	1728	419	7647	141	T	-t	0.4427	2.0872	1.0048	361.5	211.1	11.5	15S	30E
2618	Oct 25	23:42:24	1730	420	7653	146	T	-a	-0.4073	2.0933	1.1275	310.5	194.8	51.5	12N	8E
2619	Apr 20	23:33:40	1733	420	7659	151	T	p-	-0.2951	2.3462	1.2871	357.9	220.4	79.1	12S	13E
2619	Oct 15	13:22:27	1735	421	7665	156	T	p-	0.3168	2.2803	1.2732	333.4	209.5	74.5	9N	163E
2620	Apr 09	06:58:44	1738	421	7671	161	P	a-	-1.0036	1.0201	0.0132	260.1	26.2	-	8S	98W
2620	Oct 03	20:33:53	1740	422	7677	166	N	t-	1.0976	0.8737	-0.1851	261.6	-	-	5N	56E
2621	Feb 28	11:09:01	1742	422	7682	133	P	-a	0.9814	1.0401	0.0741	246.9	58.6	-	9N	157W
2621	Aug 24	05:54:21	1745	423	7688	138	N	-t	-1.0328	0.9968	-0.0701	281.2	-	-	12S	80W
2622	Feb 18	02:32:57	1747	423	7694	143	T	-p	0.3202	2.2651	1.2757	321.3	203.5	72.8	12N	28W
2622	Aug 13	10:06:05	1750	424	7700	148	T-	pp	-0.2406	2.4272	1.4062	347.4	219.8	88.7	15S	143W
2623	Feb 07	13:25:18	1752	425	7706	153	T	p-	-0.3886	2.1676	1.1225	341.1	206.7	53.2	15N	169E
2623	Aug 02	21:35:46	1755	425	7712	158	P	a-	0.5288	1.8710	0.9041	308.3	185.1	-	17S	45E
2624	Jan 27	16:56:46	1757	426	7718	163	N	t-	-1.1169	0.8569	-0.2387	265.7	-	-	18N	116E
2624	Jun 23	07:19:44	1759	426	7723	130	N	-a	-1.2526	0.5321	-0.4132	186.0	-	-	25S	102W
2624	Jul 22	14:00:53	1760	426	7724	168	N	a-	1.2392	0.5544	-0.3864	188.6	-	-	19S	159E
2624	Dec 16	21:40:23	1762	427	7729	135	N	-t	1.2347	0.6335	-0.4477	230.0	-	-	24N	41E
2625	Jun 12	22:36:37	1764	427	7735	140	P	-a	-0.5468	1.8464	0.8627	313.3	184.8	-	24S	29E
2625	Dec 06	03:40:51	1767	428	7741	145	P	-p	0.4880	1.9744	0.9508	326.2	193.1	-	23N	50W
2626	Jun 02	07:46:42	1770	428	7747	150	T+	pp	0.2202	2.4742	1.4339	356.0	223.9	91.7	22S	110W
2626	Nov 25	16:35:25	1772	429	7753	155	T-	p-	-0.2222	2.4375	1.4627	319.8	207.3	87.3	20N	115E
2627	May 22	09:59:09	1775	429	7759	160	P	t-	0.9914	1.0772	0.0012	292.2	8.4	-	19S	143W
2627	Nov 15	08:35:38	1777	430	7765	165	P	a-	-0.8972	1.1945	0.2288	260.9	101.2	-	17N	125W
2628	Apr 10	20:03:57	1779	430	7770	132	N	-t	-1.1505	0.7709	-0.2764	243.7	-	-	9S	66E
2628	Oct 05	11:22:27	1782	431	7776	137	N	-a	1.0822	0.8827	-0.1380	250.7	-	-	6N	166W
2629	Mar 31	05:24:34	1784	431	7782	142	T	-p	-0.3783	2.1608	1.1667	323.4	201.6	59.5	4S	73W
2629	Sep 24	16:36:43	1787	432	7788	147	T	-t	0.3691	2.2150	1.1471	359.8	216.8	60.1	1N	116E
2630	Mar 20	20:15:14	1789	433	7794	152	T	p-	0.3278	2.2379	1.2746	312.3	200.0	71.7	0N	65E
2630	Sep 13	16:57:16	1792	433	7800	157	T	t-	-0.3717	2.2142	1.1382	364.4	218.5	59.0	4S	112E
2631	Mar 10	12:13:31	1794	434	7806	162	P	a-	1.0154	0.9831	0.0066	245.1	17.9	-	5N	173W
2631	Sep 02	19:39:16	1797	434	7812	167	N	t-	-1.0994	0.8592	-0.1773	254.9	-	-	9S	73E
2632	Jan 29	09:52:04	1799	435	7817	134	N	-a	-1.0829	0.9028	-0.1601	261.2	-	-	17N	138W
2632	Jul 23	21:25:58	1802	435	7823	139	P	-a	0.7903	1.3853	0.4301	277.7	136.4	-	19S	48E
2633	Jan 17	11:31:08	1804	436	7829	144	T	-t	-0.4215	2.1366	1.0333	364.6	212.2	29.8	20N	163W
2633	Jul 13	14:26:21	1807	436	7835	149	T+	pp	0.0457	2.7445	1.8032	317.2	211.5	99.1	22S	153E
2634	Jan 06	10:40:37	1809	437	7841	154	T+	p-	0.2586	2.4304	1.3375	368.4	224.8	84.7	23N	152W
2634	Jul 03	06:34:20	1812	437	7847	159	P	a-	-0.7131	1.5349	0.5641	292.8	155.4	-	24S	90W

2634	Dec 26	14:51:03	1814	438	7853	164	P	a-	0.9309	1.1704	0.1299	281.6	82.5	-	24N	145E
2635	May 24	04:26:33	1817	438	7858	131	N	-t	1.2305	0.6284	-0.4274	228.0	-	-	20S	59W
2635	Jun 22	17:24:35	1817	438	7859	169	Nb	t-	-1.5337	0.0568	-0.9687	70.0	-	-	25S	107E
2635	Nov 16	15:52:27	1819	439	7864	136	N	-a	-1.1145	0.7959	-0.1700	222.3	-	-	18N	126E
2635	Dec 16	02:16:35	1820	439	7865	174	N	a-	1.5481	0.0107	-0.9759	28.2	-	-	25N	28W
2636	May 12	05:23:33	1822	439	7870	141	P	-t	0.5065	1.9686	0.8893	356.2	202.9	-	18S	74W
2636	Nov 05	07:58:54	1824	440	7876	146	T	-a	-0.4403	2.0351	1.0650	309.4	191.8	37.5	15N	116W
2637	May 01	06:52:07	1827	441	7882	151	T-	p-	-0.2412	2.4422	1.3889	358.5	223.5	88.5	15S	96W
2637	Oct 25	21:14:08	1829	441	7888	156	T	p-	0.2774	2.3557	1.3425	336.7	212.6	81.5	13N	45E
2638	Apr 20	14:49:38	1832	442	7894	161	P	a-	-0.9590	1.0988	0.0979	266.5	70.4	-	12S	145E
2638	Oct 15	03:52:14	1834	442	7900	166	N	t-	1.0489	0.9661	-0.0985	273.5	-	-	9N	54W
2639	Mar 11	19:45:21	1837	443	7905	133	P	-a	0.9997	1.0054	0.0417	243.5	44.2	-	5N	74E
2639	Sep 04	12:37:52	1839	443	7911	138	N	-t	-1.1061	0.8625	-0.2049	264.9	-	-	8S	179E
2640	Feb 29	11:07:46	1842	444	7917	143	T	-p	0.3353	2.2375	1.2478	321.4	202.9	69.8	8N	156W
2640	Aug 23	17:09:16	1844	444	7923	148	T	-p	-0.3139	2.2917	1.2725	343.1	214.5	76.1	11S	111E
2641	Feb 17	21:46:02	1847	445	7929	153	T	p-	-0.3786	2.1867	1.1402	342.8	208.2	56.7	11N	44E
2641	Aug 13	04:58:40	1850	445	7935	158	T	a-	0.4544	2.0066	1.0413	312.6	193.3	30.6	14S	66W
2642	Feb 07	01:00:10	1852	446	7941	163	N	t-	-1.1078	0.8739	-0.2222	268.3	-	-	15N	5W
2642	Jul 04	14:48:49	1854	446	7946	130	N	-a	-1.3252	0.3991	-0.5467	163.4	-	-	24S	147E
2642	Aug 02	21:30:55	1855	447	7947	168	N	a-	1.1673	0.6865	-0.2546	207.1	-	-	16S	46E
2642	Dec 28	05:49:27	1857	447	7952	135	N	-t	1.2420	0.6195	-0.4606	227.2	-	-	24N	79W
2643	Jun 24	05:52:22	1859	448	7958	140	P	-a	-0.6221	1.7092	0.7236	307.9	173.8	-	24S	79W
2643	Dec 17	12:08:56	1862	448	7964	145	P	-a	0.4972	1.9569	0.9346	324.4	191.5	-	24N	176W
2644	Jun 12	14:40:32	1865	449	7970	150	T+	pp	0.1454	2.6122	1.5706	359.2	227.8	99.4	23S	148E
2644	Dec 06	01:12:51	1867	449	7976	155	T-	p-	-0.2068	2.4660	1.4907	319.8	207.7	88.8	22N	13W
2645	Jun 01	16:40:34	1870	450	7982	160	P	t-	0.9179	1.2112	0.1370	305.4	89.8	-	21S	117E
2645	Nov 25	17:08:14	1872	450	7988	165	P	a-	-0.8783	1.2307	0.2618	264.2	107.8	-	20N	107E
2646	Apr 22	03:35:28	1875	451	7993	132	N	-t	-1.1921	0.6914	-0.3496	231.6	-	-	13S	47W
2646	Oct 16	19:00:08	1877	451	7999	137	N	-a	1.1309	0.7966	-0.2304	241.4	-	-	10N	79E
2647	Apr 11	13:28:26	1880	452	8005	142	T	-p	-0.4124	2.0955	1.1070	320.1	198.2	48.5	9S	166E
2647	Oct 05	23:42:31	1882	452	8011	147	T	-t	0.4278	2.1099	1.0369	357.5	210.9	31.2	5N	9E
2648	Mar 31	04:38:30	1885	453	8017	152	T	p-	0.2995	2.2882	1.3282	313.0	201.8	76.9	4S	61W
2648	Sep 23	23:50:06	1888	454	8023	157	T	t-	-0.3051	2.3374	1.2596	367.8	224.0	77.4	0N	9E
2649	Mar 20	20:41:37	1890	454	8029	162	P	a-	0.9964	1.0176	0.0417	248.9	44.8	-	1N	59E
2649	Sep 13	02:45:07	1893	455	8035	167	N	t-	-1.0296	0.9868	-0.0489	268.7	-	-	5S	34W
2650	Feb 08	18:09:56	1895	455	8040	134	N	-a	-1.0935	0.8842	-0.1804	259.8	-	-	14N	98E
2650	Aug 04	04:51:36	1898	456	8046	139	P	-a	0.8607	1.2554	0.3017	267.7	116.2	-	16S	63W
2651	Jan 28	19:32:56	1900	456	8052	144	T	-t	-0.4315	2.1185	1.0150	364.2	211.2	20.1	18N	77E
2651	Jul 24	21:55:59	1903	457	8058	149	T+	-p	0.1193	2.6098	1.6678	316.7	210.4	96.5	20S	41E
2652	Jan 17	18:48:24	1905	457	8064	154	T+	p-	0.2500	2.4452	1.3540	367.9	225.0	86.1	21N	88E

2652	Jul 13	13:52:24	1908	458	8070	159	P	a-	-0.6410	1.6684	0.6952	301.4	169.4	-	22S	162E
2653	Jan 05	23:18:52	1911	458	8076	164	P	a-	0.9213	1.1868	0.1485	282.1	87.7	-	23N	19E
2653	Jun 03	11:18:13	1913	459	8081	131	N	-t	1.3050	0.4918	-0.5642	204.9	-	-	21S	161W
2653	Jul 03	00:17:34	1913	459	8082	169	N	t-	-1.4620	0.1896	-0.8383	127.0	-	-	24S	5E
2653	Nov 27	00:26:23	1916	459	8087	136	N	-a	-1.1327	0.7632	-0.2042	218.3	-	-	20N	2W
2653	Dec 26	11:00:16	1916	460	8088	174	N	a-	1.5371	0.0305	-0.9554	47.6	-	-	25N	157W
2654	May 23	12:09:18	1918	460	8093	141	P	-t	0.5780	1.8358	0.7596	349.5	191.8	-	20S	175W
2654	Nov 16	16:23:09	1921	461	8099	146	T	-a	-0.4663	1.9895	1.0152	308.7	189.2	18.4	18N	118E
2655	May 12	14:01:45	1923	461	8105	151	T-	pp	-0.1797	2.5522	1.5047	358.7	226.1	96.0	18S	157E
2655	Nov 06	05:13:34	1926	462	8111	156	T+	p-	0.2453	2.4176	1.3984	339.5	214.9	86.2	16N	75W
2656	Apr 30	22:32:48	1929	462	8117	161	P	a-	-0.9075	1.1902	0.1953	273.4	97.8	-	16S	29E
2656	Oct 25	11:18:41	1931	463	8123	166	Nx	t-	1.0074	1.0450	-0.0253	283.1	-	-	13N	166W
2657	Mar 22	04:15:35	1934	463	8128	133	N	-a	1.0231	0.9612	-0.0001	239.2	-	-	0N	54W
2657	Sep 14	19:26:56	1936	464	8134	138	N	-t	-1.1750	0.7364	-0.3318	247.5	-	-	4S	76E
2658	Mar 11	19:37:38	1939	464	8140	143	T	-p	0.3540	2.2033	1.2136	321.3	201.9	65.7	4N	76E
2658	Sep 04	00:17:29	1942	465	8146	148	T	-p	-0.3840	2.1625	1.1446	338.2	208.0	57.7	7S	4E
2659	Mar 01	06:01:05	1944	466	8152	153	T	p-	-0.3649	2.2124	1.1649	344.6	210.0	61.2	7N	79W
2659	Aug 24	12:25:50	1947	466	8158	158	T	a-	0.3831	2.1371	1.1728	315.9	199.6	60.0	11S	178W
2660	Feb 18	09:00:04	1949	467	8164	163	N	t-	-1.0960	0.8954	-0.2005	271.4	-	-	11N	124W
2660	Jul 14	22:16:52	1952	467	8169	130	N	-a	-1.3980	0.2660	-0.6808	135.3	-	-	23S	36E
2660	Aug 13	05:03:23	1952	467	8170	168	N	a-	1.0975	0.8150	-0.1270	222.8	-	-	13S	67W
2661	Jan 07	14:01:33	1954	468	8175	135	N	-t	1.2475	0.6086	-0.4698	224.8	-	-	23N	159E
2661	Jul 04	13:05:11	1957	468	8181	140	P	-a	-0.6988	1.5697	0.5817	301.3	160.0	-	23S	174E
2661	Dec 27	20:41:07	1960	469	8187	145	P	-a	0.5036	1.9444	0.9237	322.9	190.2	-	24N	58E
2662	Jun 23	21:28:01	1962	469	8193	150	T+	pp	0.0661	2.7584	1.7153	361.6	230.3	104.0	23S	47E
2662	Dec 17	09:55:27	1965	470	8199	155	T-	p-	-0.1956	2.4868	1.5112	319.7	207.9	89.8	23N	142W
2663	Jun 12	23:16:21	1968	471	8205	160	P	t-	0.8395	1.3543	0.2817	317.8	126.2	-	22S	19E
2663	Dec 07	01:45:54	1970	471	8211	165	P	a-	-0.8640	1.2585	0.2866	266.8	112.5	-	22N	21W
2664	May 02	11:00:07	1973	472	8216	132	N	-t	-1.2398	0.6008	-0.4341	216.9	-	-	17S	158W
2664	Jun 01	00:26:01	1973	472	8217	170	Nb	t-	1.5566	0.0288	-1.0246	51.6	-	-	21S	2E
2664	Oct 27	02:45:17	1975	472	8222	137	N	-a	1.1727	0.7231	-0.3102	232.8	-	-	14N	37W
2665	Apr 21	21:24:59	1978	473	8228	142	T	-a	-0.4529	2.0183	1.0354	316.2	193.9	28.4	13S	47E
2665	Oct 16	06:55:16	1981	473	8234	147	P	-t	0.4801	2.0164	0.9384	355.0	204.7	-	9N	99W
2666	Apr 11	12:53:39	1983	474	8240	152	T+	p-	0.2646	2.3507	1.3939	313.9	203.9	82.4	8S	175E
2666	Oct 05	06:52:00	1986	474	8246	157	T-	pp	-0.2457	2.4474	1.3676	370.2	227.8	88.3	5N	97W
2667	Apr 01	04:59:43	1989	475	8252	162	P	a-	0.9700	1.0656	0.0905	253.9	65.7	-	3S	65W
2667	Sep 24	10:00:36	1991	476	8258	167	P	h-	-0.9668	1.1019	0.0666	279.5	60.6	-	0S	143W
2668	Feb 20	02:22:33	1994	476	8263	134	N	-h	-1.1074	0.8593	-0.2064	257.5	-	-	10N	24W
2668	Aug 14	12:20:01	1996	477	8269	139	P	-a	0.9291	1.1294	0.1765	257.0	90.3	-	13S	175W
2669	Feb 08	03:33:01	1999	477	8275	144	P	-t	-0.4425	2.0981	0.9950	363.7	210.1	-	15N	42W

2669	Aug 04	05:25:18	2002	478	8281	149	T+	-p	0.1928	2.4757	1.5323	315.5	208.2	91.3	17S	71W
2670	Jan 28	02:57:40	2004	478	8287	154	T+	p-	0.2422	2.4584	1.3697	367.2	225.1	87.3	18N	33W
2670	Jul 24	21:06:25	2007	479	8293	159	P	a-	-0.5662	1.8071	0.8307	309.4	181.5	-	20S	54E
2671	Jan 17	07:50:15	2010	479	8299	164	P	a-	0.9141	1.1986	0.1631	282.1	91.5	-	22N	107W
2671	Jun 14	18:02:59	2012	480	8304	131	N	-t	1.3837	0.3477	-0.7088	175.0	-	-	22S	98E
2671	Jul 14	07:06:47	2012	480	8305	169	N	t-	-1.3877	0.3273	-0.7035	165.3	-	-	23S	96W
2671	Dec 08	09:06:17	2015	480	8310	136	N	-a	-1.1462	0.7391	-0.2296	215.2	-	-	21N	130W
2672	Jan 06	19:46:57	2015	481	8311	174	N	a-	1.5286	0.0456	-0.9391	58.0	-	-	24N	73E
2672	Jun 02	18:50:36	2017	481	8316	141	P	-t	0.6529	1.6970	0.6237	341.4	177.8	-	22S	86E
2672	Nov 27	00:53:06	2020	482	8322	146	P	-a	-0.4868	1.9538	0.9754	308.2	187.1	-	21N	8W
2673	May 22	21:07:22	2023	482	8328	151	T-	pp	-0.1139	2.6701	1.6282	358.5	227.9	101.2	21S	51E
2673	Nov 16	13:18:08	2025	483	8334	156	T+	p-	0.2182	2.4703	1.4453	342.1	216.8	89.6	19N	165E
2674	May 12	06:10:58	2028	483	8340	161	P	a-	-0.8512	1.2907	0.3016	280.3	119.3	-	19S	85W
2674	Nov 05	18:52:14	2031	484	8346	166	P	t-	0.9718	1.1131	0.0374	291.2	46.9	-	17N	81E
2675	Apr 02	12:37:32	2033	484	8351	133	N	-a	1.0535	0.9044	-0.0546	233.3	-	-	4S	180W
2675	May 01	21:07:11	2034	484	8352	171	Nb	a-	-1.5178	0.0502	-0.9044	59.9	-	-	17S	50E
2675	Sep 26	02:25:47	2036	485	8357	138	N	-t	-1.2364	0.6242	-0.4449	230.0	-	-	0N	29W
2676	Mar 22	03:59:04	2039	485	8363	143	T	-a	0.3794	2.1566	1.1669	320.7	200.3	59.1	0S	50W
2676	Sep 14	07:34:04	2041	486	8369	148	T	-t	-0.4479	2.0447	1.0279	333.0	200.9	26.2	3S	106W
2677	Mar 11	14:08:03	2044	487	8375	153	T	p-	-0.3450	2.2491	1.2011	346.7	212.3	67.0	3N	159E
2677	Sep 03	19:58:56	2047	487	8381	158	T	p-	0.3160	2.2599	1.2961	318.3	204.3	75.2	7S	69E
2678	Feb 28	16:52:50	2049	488	8387	163	N	t-	-1.0788	0.9265	-0.1685	275.5	-	-	7N	118E
2678	Jul 26	05:42:40	2052	488	8392	130	N	-a	-1.4722	0.1308	-0.8178	96.2	-	-	21S	75W
2678	Aug 24	12:38:20	2052	488	8393	168	N	a-	1.0297	0.9403	-0.0034	236.3	-	-	10S	179E
2679	Jan 18	22:16:01	2054	489	8398	135	N	-t	1.2517	0.5997	-0.4762	222.7	-	-	22N	37E
2679	Jul 15	20:14:08	2057	489	8404	140	P	-a	-0.7780	1.4261	0.4350	293.4	142.0	-	22S	67E
2680	Jan 08	05:16:50	2060	490	8410	145	P	-a	0.5079	1.9353	0.9169	321.4	189.3	-	23N	69W
2680	Jul 04	04:11:04	2063	491	8416	150	T-	pp	-0.0162	2.8510	1.8059	363.1	231.4	105.3	23S	53W
2680	Dec 27	18:43:03	2065	491	8422	155	T-	p-	-0.1879	2.5009	1.5254	319.5	207.9	90.4	23N	88E
2681	Jun 23	05:46:31	2068	492	8428	160	P	t-	0.7562	1.5064	0.4351	329.3	153.2	-	23S	77W
2681	Dec 17	10:29:10	2071	492	8434	165	P	a-	-0.8546	1.2773	0.3025	268.7	115.4	-	22N	150W
2682	May 13	18:18:47	2073	493	8439	132	N	-t	-1.2929	0.5003	-0.5285	198.9	-	-	20S	93E
2682	Jun 12	07:13:47	2074	493	8440	170	N	t-	1.4795	0.1681	-0.8808	122.5	-	-	22S	100W
2682	Nov 07	10:37:24	2076	493	8445	137	N	-a	1.2078	0.6618	-0.3776	225.0	-	-	17N	155W
2683	May 03	05:14:43	2079	494	8451	142	P	-a	-0.4997	1.9297	0.9522	311.6	188.3	-	16S	71W
2683	Oct 27	14:16:29	2081	494	8457	147	P	-t	0.5248	1.9368	0.8539	352.6	198.6	-	13N	150E
2684	Apr 21	21:02:48	2084	495	8463	152	T+	p-	0.2245	2.4227	1.4690	314.8	206.0	87.4	12S	53E
2684	Oct 15	14:01:40	2087	496	8469	157	T-	pp	-0.1923	2.5463	1.4646	371.7	230.3	95.2	9N	155E
2685	Apr 11	13:11:27	2090	496	8475	162	P	a-	0.9389	1.1223	0.1479	259.5	83.5	-	8S	171E
2685	Oct 04	17:24:09	2092	497	8481	167	P	h-	-0.9096	1.2067	0.1717	288.3	95.6	-	4N	105E

2686	Mar 02	10:28:49	2095	497	8486	134	N	-h	-1.1258	0.8257	-0.2405	254.0	-	-	6N	146W
2686	Aug 25	19:52:19	2097	498	8492	139	P	-a	0.9947	1.0089	0.0563	245.6	51.7	-	9S	71E
2687	Feb 19	11:27:59	2100	498	8498	144	P	-t	-0.4575	2.0700	0.9681	362.6	208.4	-	11N	160W
2687	Aug 15	12:57:35	2103	499	8504	149	T+	-p	0.2635	2.3469	1.4015	313.8	205.0	83.4	14S	176E
2688	Feb 08	11:03:27	2106	500	8510	154	T+	p-	0.2310	2.4772	1.3916	366.5	225.4	89.0	15N	154W
2688	Aug 04	04:22:01	2108	500	8516	159	P	a-	-0.4936	1.9423	0.9621	316.4	191.4	-	17S	55W
2689	Jan 27	16:21:20	2111	501	8522	164	P	a-	0.9063	1.2112	0.1791	282.2	95.4	-	19N	126E
2689	Jun 25	00:41:29	2113	501	8527	131	N	-t	1.4662	0.1968	-0.8607	133.8	-	-	22S	0W
2689	Jul 24	13:53:07	2114	501	8528	169	N	t-	-1.3117	0.4685	-0.5657	196.0	-	-	21S	163E
2689	Dec 18	17:51:13	2116	502	8533	136	N	-a	-1.1560	0.7217	-0.2480	213.0	-	-	22N	100E
2690	Jan 17	04:35:15	2117	502	8534	174	N	a-	1.5212	0.0583	-0.9248	65.4	-	-	22N	58W
2690	Jun 14	01:25:01	2119	502	8539	141	P	-t	0.7331	1.5486	0.4779	331.5	159.2	-	23S	12W
2690	Dec 08	09:29:19	2122	503	8545	146	P	-a	-0.5022	1.9275	0.9454	308.0	185.5	-	22N	136W
2691	Jun 03	04:06:10	2125	504	8551	151	T-	pp	-0.0417	2.7999	1.7633	357.6	228.6	104.0	22S	53W
2691	Nov 27	21:30:17	2127	504	8557	156	T+	pp	0.1980	2.5100	1.4794	344.3	218.2	91.8	21N	43E
2692	May 22	13:43:05	2130	505	8563	161	P	a-	-0.7889	1.4022	0.4185	287.2	137.8	-	21S	162E
2692	Nov 16	02:32:28	2133	505	8569	166	P	t-	0.9420	1.1703	0.0895	297.7	72.1	-	20N	33W
2693	Apr 12	20:52:50	2135	506	8574	133	N	-a	1.0893	0.8373	-0.1193	226.1	-	-	8S	56E
2693	May 12	05:00:36	2136	506	8575	171	N	a-	-1.4659	0.1437	-0.8074	100.3	-	-	20S	67W
2693	Oct 06	09:32:28	2138	506	8580	138	N	-t	-1.2917	0.5232	-0.5469	212.3	-	-	4N	137W
2694	Apr 02	12:12:41	2141	507	8586	143	T	-a	0.4106	2.0992	1.1098	319.8	198.0	49.0	5S	173W
2694	Sep 25	14:58:00	2144	507	8592	148	P	-h	-0.5064	1.9369	0.9207	327.7	193.3	-	1N	143E
2695	Mar 22	22:07:28	2146	508	8598	153	T	p-	-0.3199	2.2954	1.2471	349.0	214.9	73.3	1S	39E
2695	Sep 15	03:38:17	2149	509	8604	158	T+	p-	0.2537	2.3742	1.4105	320.1	207.6	84.8	3S	47W
2696	Mar 11	00:39:14	2152	509	8610	163	N	t-	-1.0566	0.9665	-0.1272	280.4	-	-	3N	1E
2696	Sep 03	20:18:22	2155	510	8616	168	P	a-	0.9661	1.0580	0.1122	247.7	71.9	-	6S	64E
2697	Jan 29	06:31:09	2157	510	8621	135	N	-t	1.2560	0.5901	-0.4828	220.5	-	-	19N	85W
2697	Jul 26	03:21:13	2160	511	8627	140	P	-a	-0.8575	1.2819	0.2873	284.0	118.4	-	20S	39W
2698	Jan 18	13:54:13	2163	511	8633	145	P	-a	0.5115	1.9273	0.9116	320.0	188.4	-	21N	163E
2698	Jul 15	10:51:09	2165	512	8639	150	T-	pp	-0.1004	2.6977	1.6502	363.6	230.8	102.9	21S	152W
2699	Jan 08	03:32:24	2168	513	8645	155	T-	p-	-0.1816	2.5122	1.5372	319.3	207.9	90.8	22N	43W
2699	Jul 04	12:14:26	2171	513	8651	160	P	t-	0.6708	1.6626	0.5923	339.4	174.3	-	22S	173W
2699	Dec 28	19:15:26	2174	514	8657	165	P	a-	-0.8478	1.2910	0.3138	270.2	117.5	-	22N	80E
2700	May 25	01:32:17	2176	514	8662	132	N	-t	-1.3506	0.3915	-0.6315	177.0	-	-	22S	15W
2700	Jun 23	13:59:40	2177	514	8663	170	N	t-	1.3996	0.3124	-0.7322	164.2	-	-	22S	160E
2700	Nov 18	18:35:03	2179	515	8668	137	N	-a	1.2376	0.6100	-0.4353	218.1	-	-	20N	86E

28TH CENTURY CE

**In the 28th century CE the total number of lunar eclipses will be 241 lunar eclipses:
86 penumbral lunar eclipses, 91 partial lunar eclipses, 64 total lunar eclipses
(48 central total lunar eclipses, 16 non-central total lunar eclipses).**

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
ECLIPSE															
2701 May 14	12:58:19	2182	515	8674	142	P	-a	-0.5523	1.8307	0.8583	306.3	181.4	-	19S	174E
2701 Nov 07	21:45:19	2185	516	8680	147	P	-t	0.5630	1.8692	0.7816	350.4	192.7	-	17N	38E
2702 May 04	05:02:19	2187	517	8686	152	T+	p-	0.1763	2.5097	1.5589	315.8	208.1	92.1	16S	67W
2702 Oct 27	21:21:45	2190	517	8692	157	T-	pp	-0.1470	2.6305	1.5469	372.6	231.8	99.4	13N	45E
2703 Apr 23	21:12:54	2193	518	8698	162	P	a-	0.8998	1.1938	0.2200	266.1	101.1	-	12S	51E
2703 Oct 17	00:58:00	2196	518	8704	167	P	h-	-0.8598	1.2980	0.2631	295.1	116.4	-	8N	9W
2704 Mar 13	18:26:55	2198	519	8709	134	N	-h	-1.1502	0.7810	-0.2853	248.7	-	-	2N	94E
2704 Sep 06	03:30:14	2201	519	8715	139	N	-a	1.0560	0.8967	-0.0562	234.0	-	-	5S	44W
2704 Oct 05	11:58:45	2202	520	8716	177	Nb	a-	-1.5219	0.0544	-0.9234	64.0	-	-	3N	173W
2705 Mar 02	19:18:43	2204	520	8721	144	P	-t	-0.4757	2.0357	0.9356	361.2	206.2	-	7N	82E
2705 Aug 26	20:30:59	2207	521	8727	149	T	-p	0.3329	2.2209	1.2730	311.6	200.8	72.0	10S	62E
2706 Feb 19	19:08:29	2210	521	8733	154	T+	p-	0.2188	2.4977	1.4160	365.7	225.7	90.7	12N	85E
2706 Aug 16	11:36:58	2212	522	8739	159	T	a-	-0.4214	2.0769	1.0925	322.6	199.7	45.8	14S	163W
2707 Feb 09	00:51:48	2215	522	8745	164	P	a-	0.8975	1.2255	0.1974	282.3	99.6	-	16N	0W
2707 Jul 07	07:16:12	2218	523	8750	131	Ne	-t	1.5505	0.0427	-1.0161	63.3	-	-	21S	98W
2707 Aug 05	20:39:12	2218	523	8751	169	N	t-	-1.2359	0.6094	-0.4285	221.4	-	-	18S	62E
2707 Dec 31	02:40:16	2220	524	8756	136	N	-a	-1.1624	0.7102	-0.2602	211.4	-	-	22N	31W
2708 Jan 29	13:24:02	2221	524	8757	174	N	a-	1.5145	0.0695	-0.9115	71.2	-	-	20N	171E
2708 Jun 25	07:57:34	2223	524	8762	141	P	-t	0.8148	1.3973	0.3290	320.0	135.1	-	23S	109W
2708 Dec 19	18:08:39	2226	525	8768	146	P	-a	-0.5145	1.9068	0.9211	308.0	184.2	-	23N	96E
2709 Jun 14	11:03:22	2229	525	8774	151	T+	pp	0.0326	2.8140	1.7825	356.0	228.1	104.1	23S	156W
2709 Dec 09	05:46:34	2232	526	8780	156	T+	pp	0.1821	2.5419	1.5061	346.3	219.4	93.4	23N	80W
2710 Jun 03	21:10:20	2235	526	8786	161	P	a-	-0.7219	1.5226	0.5440	293.8	153.6	-	23S	51E
2710 Nov 28	10:19:41	2238	527	8792	166	P	t-	0.9184	1.2161	0.1305	302.9	86.7	-	22N	149W
2711 Apr 25	04:59:48	2240	528	8797	133	N	-a	1.1318	0.7584	-0.1961	217.0	-	-	12S	65W

2711 May 24	12:47:46	2240	528	8798	171	N	a-	-1.4090	0.2465	-0.7016	129.9	-	-	22S	176E
2711 Oct 18	16:49:34	2243	528	8803	138	N	-t	-1.3389	0.4372	-0.6339	195.3	-	-	8N	114E
2712 Apr 13	20:16:49	2246	529	8809	143	T	-a	0.4491	2.0286	1.0392	318.3	194.7	30.0	9S	65E
2712 Oct 06	22:32:11	2248	529	8815	148	P	-h	-0.5571	1.8437	0.8280	322.5	185.8	-	5N	29E
2713 Apr 03	05:57:06	2251	530	8821	153	T	p-	-0.2873	2.3552	1.3068	351.5	217.9	80.2	5S	79W
2713 Sep 26	11:24:39	2254	531	8827	158	T+	p-	0.1968	2.4787	1.5146	321.2	209.8	91.0	1N	164W
2714 Mar 23	08:16:58	2257	531	8833	163	Nx	t-	-1.0277	1.0186	-0.0732	286.4	-	-	2S	114W
2714 Sep 16	04:03:35	2260	532	8839	168	P	a-	0.9068	1.1681	0.2197	257.4	99.1	-	2S	53W
2715 Feb 10	14:44:01	2262	532	8844	135	N	-t	1.2627	0.5760	-0.4931	217.4	-	-	16N	152E
2715 Aug 07	10:27:43	2265	533	8850	140	P	-a	-0.9366	1.1389	0.1401	273.1	84.7	-	17S	145W
2716 Jan 30	22:32:34	2268	533	8856	145	P	-a	0.5152	1.9191	0.9065	318.5	187.6	-	18N	34E
2716 Jul 26	17:28:53	2271	534	8862	150	T-	pp	-0.1856	2.5428	1.4925	363.1	228.4	96.4	19S	109E
2717 Jan 19	12:23:40	2274	535	8868	155	T-	p-	-0.1767	2.5207	1.5465	319.0	207.9	91.2	20N	174W
2717 Jul 15	18:39:38	2277	535	8874	160	P	t-	0.5828	1.8238	0.7542	348.3	191.4	-	21S	91E
2718 Jan 09	04:04:40	2280	536	8880	165	P	a-	-0.8440	1.2989	0.3197	271.3	118.6	-	21N	51W
2718 Jun 05	08:40:06	2282	536	8885	132	N	-t	-1.4133	0.2736	-0.7439	148.9	-	-	24S	121W
2718 Jul 04	20:42:21	2282	536	8886	170	N	t-	1.3161	0.4637	-0.5770	196.6	-	-	22S	60E
2718 Nov 30	02:39:37	2285	537	8891	137	N	-a	1.2610	0.5700	-0.4809	212.5	-	-	23N	34W
2719 May 25	20:36:42	2288	537	8897	142	P	-a	-0.6098	1.7226	0.7551	300.2	172.8	-	21S	60E
2719 Nov 19	05:21:14	2291	538	8903	147	P	-t	0.5948	1.8129	0.7210	348.4	187.3	-	20N	75W
2720 May 14	12:56:48	2293	539	8909	152	T+	p-	0.1237	2.6048	1.6565	316.7	209.7	95.8	19S	175E
2720 Nov 07	04:50:30	2296	539	8915	157	T-	pp	-0.1082	2.7025	1.6172	373.0	232.6	102.0	16N	67W
2721 May 04	05:07:33	2299	540	8921	162	P	a-	0.8558	1.2744	0.3010	273.1	117.1	-	15S	68W
2721 Oct 27	08:40:20	2302	540	8927	167	P	a-	-0.8162	1.3780	0.3432	300.3	130.9	-	12N	124W
2722 Mar 25	02:17:10	2305	541	8932	134	N	-t	-1.1800	0.7263	-0.3398	241.8	-	-	3S	24W
2722 Sep 17	11:14:25	2307	542	8938	139	N	-a	1.1122	0.7940	-0.1597	222.2	-	-	1S	160W
2722 Oct 16	19:56:03	2308	542	8939	177	N	a-	-1.4756	0.1395	-0.8386	101.5	-	-	7N	67E
2723 Mar 14	03:00:45	2310	542	8944	144	P	-t	-0.5005	1.9888	0.8912	359.0	202.9	-	3N	34W
2723 Sep 07	04:10:08	2313	543	8950	149	T	-a	0.3970	2.1049	1.1538	309.0	195.9	56.2	6S	53W
2724 Mar 02	03:07:50	2316	543	8956	154	T+	p-	0.2018	2.5267	1.4493	364.9	226.2	92.9	8N	34W
2724 Aug 26	18:54:46	2319	544	8962	159	T	p-	-0.3523	2.2060	1.2169	328.0	206.3	67.5	10S	87E
2725 Feb 19	09:18:55	2322	545	8968	164	P	a-	0.8854	1.2454	0.2218	282.8	104.9	-	12N	127W
2725 Aug 16	03:25:46	2325	545	8974	169	N	t-	-1.1611	0.7488	-0.2933	243.0	-	-	15S	40W
2726 Jan 10	11:31:27	2327	546	8979	136	N	-a	-1.1675	0.7009	-0.2696	210.2	-	-	21N	162W
2726 Feb 08	22:10:39	2328	546	8980	174	N	a-	1.5059	0.0841	-0.8945	78.0	-	-	16N	41E
2726 Jul 06	14:25:30	2330	546	8985	141	P	-t	0.9002	1.2397	0.1735	306.3	100.2	-	22S	155E
2726 Dec 31	02:52:29	2333	547	8991	146	P	-a	-0.5226	1.8934	0.9047	308.3	183.4	-	23N	33W
2727 Jun 25	17:57:06	2336	547	8997	151	T+	pp	0.1105	2.6688	1.6418	353.6	226.3	101.2	23S	102E
2727 Dec 20	14:07:32	2339	548	9003	156	T+	pp	0.1709	2.5648	1.5243	348.1	220.3	94.5	23N	157E

2728 Jun 14	04:34:18	2342	549	9009	161	P	a-	-0.6514	1.6497	0.6756	299.9	167.2	-	24S	58W
2728 Dec 08	18:13:31	2345	549	9015	166	P	t-	0.9008	1.2504	0.1607	306.9	95.9	-	23N	94E
2729 May 05	12:59:43	2347	550	9020	133	N	-a	1.1801	0.6688	-0.2837	205.7	-	-	15S	175E
2729 Jun 03	20:29:13	2348	550	9021	171	N	a-	-1.3473	0.3583	-0.5870	154.8	-	-	24S	62E
2729 Oct 29	00:15:39	2350	550	9026	138	N	-t	-1.3792	0.3637	-0.7084	179.0	-	-	12N	2E
2730 Apr 25	04:13:01	2353	551	9032	143	P	-a	0.4935	1.9470	0.9578	316.1	190.3	-	13S	54W
2730 Oct 18	06:15:26	2356	552	9038	148	P	-a	-0.6013	1.7625	0.7470	317.6	178.3	-	9N	87W
2731 Apr 14	13:37:24	2359	552	9044	153	T-	pp	-0.2477	2.4278	1.3795	354.0	221.0	87.0	9S	166E
2731 Oct 07	19:19:10	2362	553	9050	158	T+	p-	0.1462	2.5720	1.6072	321.8	211.2	94.8	6N	77E
2732 Apr 02	15:47:22	2365	553	9056	163	Nx	t-	-0.9928	1.0816	-0.0080	293.3	-	-	6S	133E
2732 Sep 26	11:53:53	2368	554	9062	168	P	a-	0.8518	1.2705	0.3191	265.7	117.8	-	2N	171W
2733 Feb 20	22:54:48	2370	554	9067	135	N	-t	1.2717	0.5573	-0.5075	213.4	-	-	12N	30E
2733 Aug 17	17:35:05	2373	555	9073	140	N	-a	-1.0139	0.9994	-0.0040	260.9	-	-	14S	108E
2734 Feb 10	07:08:45	2376	556	9079	145	P	-a	0.5211	1.9063	0.8975	316.9	186.5	-	15N	94W
2734 Aug 07	00:06:14	2379	556	9085	150	T-	-t	-0.2704	2.3888	1.3352	361.4	224.2	84.8	17S	10E
2735 Jan 30	21:13:42	2382	557	9091	155	T-	p-	-0.1706	2.5313	1.5585	318.7	208.0	91.7	18N	54E
2735 Jul 27	01:06:27	2385	557	9097	160	P	t-	0.4956	1.9836	0.9142	355.7	204.7	-	19S	5W
2736 Jan 20	12:52:53	2388	558	9103	165	P	a-	-0.8396	1.3078	0.3270	272.4	120.0	-	19N	179E
2736 Jun 15	15:45:46	2390	559	9108	132	N	-t	-1.4785	0.1515	-0.8609	111.5	-	-	25S	134E
2736 Jul 15	03:26:56	2391	559	9109	170	N	t-	1.2326	0.6153	-0.4221	222.3	-	-	20S	40W
2736 Dec 10	10:49:05	2393	559	9114	137	N	-a	1.2801	0.5375	-0.5184	207.9	-	-	24N	154W
2737 Jun 05	04:09:27	2396	560	9120	142	P	-a	-0.6727	1.6052	0.6420	293.0	161.9	-	23S	52W
2737 Nov 29	13:04:45	2399	560	9126	147	P	-t	0.6202	1.7683	0.6726	346.7	182.6	-	22N	171E
2738 May 25	20:43:16	2402	561	9132	152	T+	pp	0.0642	2.7130	1.7668	317.3	211.0	98.3	21S	59E
2738 Nov 18	12:29:39	2405	562	9138	157	T-	pp	-0.0775	2.7594	1.6728	373.0	232.9	103.3	19N	179E
2739 May 15	12:52:08	2408	562	9144	162	P	a-	0.8039	1.3696	0.3962	280.7	132.9	-	18S	176E
2739 Nov 07	16:33:44	2411	563	9150	167	P	a-	-0.7806	1.4431	0.4085	304.1	141.0	-	15N	118E
2740 Apr 04	09:58:13	2413	563	9155	134	N	-t	-1.2164	0.6592	-0.4064	232.4	-	-	7S	139W
2740 Sep 27	19:04:35	2416	564	9161	139	N	-a	1.1637	0.6999	-0.2549	210.4	-	-	3N	81E
2740 Oct 27	04:01:08	2417	564	9162	177	N	a-	-1.4349	0.2144	-0.7643	124.6	-	-	11N	54W
2741 Mar 24	10:36:52	2419	565	9167	144	P	-t	-0.5302	1.9329	0.8381	356.3	198.7	-	2S	148W
2741 Sep 17	11:52:53	2422	565	9173	149	T	-a	0.4577	1.9954	1.0407	306.1	190.2	29.9	2S	169W
2742 Mar 13	11:02:34	2425	566	9179	154	T+	p-	0.1801	2.5641	1.4917	364.1	226.9	95.3	3N	153W
2742 Sep 07	02:14:43	2428	566	9185	159	T	p-	-0.2856	2.3310	1.3366	332.6	211.6	80.9	6S	24W
2743 Mar 02	17:43:01	2431	567	9191	164	P	a-	0.8700	1.2711	0.2524	283.8	111.1	-	8N	107E
2743 Aug 27	10:15:08	2434	568	9197	169	N	t-	-1.0886	0.8841	-0.1626	261.5	-	-	11S	143W
2744 Jan 21	20:23:08	2437	568	9202	136	N	-a	-1.1724	0.6919	-0.2786	209.0	-	-	19N	67E
2744 Feb 20	06:54:25	2437	568	9203	174	N	a-	1.4949	0.1028	-0.8730	86.0	-	-	13N	90W
2744 Jul 16	20:55:06	2440	569	9208	141	P	-t	0.9842	1.0847	0.0201	290.9	34.8	-	20S	58E
2745 Jan 10	11:37:35	2443	569	9214	146	P	-a	-0.5293	1.8825	0.8912	308.7	182.8	-	21N	163W

2745 Jul 06	00:50:19	2446	570	9220	151	T+	pp	0.1898	2.5213	1.4985	350.2	223.0	94.9	22S	1W
2745 Dec 30	22:31:17	2448	571	9226	156	T+	pp	0.1626	2.5821	1.5374	349.7	221.1	95.3	23N	33E
2746 Jun 25	11:55:57	2451	571	9232	161	P	a-	-0.5784	1.7816	0.8116	305.4	178.7	-	24S	168W
2746 Dec 20	02:11:48	2454	572	9238	166	P	t-	0.8870	1.2775	0.1843	310.0	102.6	-	24N	24W
2747 May 16	20:51:30	2457	572	9243	133	N	-a	1.2349	0.5675	-0.3835	191.5	-	-	18S	57E
2747 Jun 15	04:06:10	2457	572	9244	171	N	a-	-1.2818	0.4775	-0.4658	176.5	-	-	24S	51W
2747 Nov 09	07:52:27	2460	573	9249	138	N	-t	-1.4116	0.3048	-0.7681	164.4	-	-	15N	112W
2747 Dec 09	01:24:46	2460	573	9250	176	N	t-	1.5632	0.0391	-1.0587	61.7	-	-	24N	14W
2748 May 05	12:00:06	2463	573	9255	143	P	-a	0.5450	1.8526	0.8632	313.2	184.3	-	16S	170W
2748 Oct 28	14:07:37	2466	574	9261	148	P	-a	-0.6390	1.6933	0.6780	313.0	171.4	-	13N	155E
2749 Apr 24	21:07:29	2469	575	9267	153	T-	pp	-0.2004	2.5145	1.4664	356.6	224.1	93.4	13S	53E
2749 Oct 18	03:21:37	2472	575	9273	158	T+	p-	0.1017	2.6541	1.6882	322.0	211.9	97.1	10N	44W
2750 Apr 13	23:06:22	2475	576	9279	163	P	t-	-0.9488	1.1610	0.0739	301.3	66.5	-	10S	23E
2750 Oct 07	19:51:19	2478	577	9285	168	P	a-	0.8029	1.3620	0.4071	272.6	131.5	-	6N	69E
2751 Mar 04	07:00:47	2480	577	9290	135	N	-t	1.2851	0.5303	-0.5295	207.9	-	-	8N	92W
2751 Aug 29	00:44:36	2483	578	9296	140	N	-a	-1.0884	0.8652	-0.1432	247.3	-	-	10S	0E
2752 Feb 21	15:42:12	2486	578	9302	145	P	-a	0.5299	1.8880	0.8834	314.9	185.0	-	11N	138E
2752 Aug 17	06:45:03	2489	579	9308	150	T	-t	-0.3534	2.2384	1.1812	358.7	218.2	66.0	13S	89W
2753 Feb 10	06:03:19	2492	580	9314	155	T-	p-	-0.1639	2.5426	1.5716	318.5	208.1	92.2	14N	77W
2753 Aug 06	07:32:41	2495	580	9320	160	T	t-	0.4075	2.1453	1.0758	361.7	215.3	44.7	16S	101W
2754 Jan 30	21:42:05	2498	581	9326	165	P	a-	-0.8364	1.3142	0.3323	273.4	121.1	-	17N	47E
2754 Jun 26	22:48:42	2501	581	9331	132	Ne	-t	-1.5465	0.0244	-0.9833	45.0	-	-	25S	30E
2754 Jul 26	10:11:56	2501	581	9332	170	N	t-	1.1479	0.7691	-0.2653	243.9	-	-	18S	141W
2754 Dec 21	19:03:12	2504	582	9337	137	N	-a	1.2945	0.5133	-0.5473	204.4	-	-	25N	84E
2755 Jun 16	11:39:18	2507	582	9343	142	P	-a	-0.7385	1.4825	0.5232	284.9	148.6	-	24S	164W
2755 Dec 10	20:54:36	2510	583	9349	147	P	-t	0.6403	1.7332	0.6341	345.4	178.6	-	23N	55E
2756 Jun 05	04:26:03	2513	584	9355	152	T+	pp	0.0017	2.8268	1.8822	317.5	211.5	99.3	23S	56W
2756 Nov 28	20:15:26	2516	584	9361	157	T-	pp	-0.0519	2.8070	1.7194	372.8	232.9	104.0	21N	63E
2757 May 25	20:31:04	2519	585	9367	162	P	a-	0.7479	1.4724	0.4988	288.4	147.2	-	20S	62E
2757 Nov 18	00:35:21	2522	586	9373	167	P	a-	-0.7511	1.4971	0.4628	306.8	148.4	-	18N	2W
2758 Apr 15	17:28:54	2525	586	9378	134	N	-t	-1.2604	0.5782	-0.4868	219.9	-	-	11S	108E
2758 May 15	07:26:09	2525	586	9379	172	Nb	t-	1.5529	0.0240	-1.0062	45.6	-	-	17S	101W
2758 Oct 09	03:02:54	2528	587	9384	139	N	-a	1.2091	0.6175	-0.3388	199.1	-	-	7N	39W
2758 Nov 07	12:15:26	2528	587	9385	177	N	a-	-1.4013	0.2764	-0.7028	140.4	-	-	15N	177W
2759 Apr 04	18:03:20	2531	587	9390	144	P	-t	-0.5677	1.8625	0.7709	352.5	192.9	-	6S	100E
2759 Sep 28	19:42:43	2534	588	9396	149	P	-a	0.5122	1.8972	0.9386	303.2	184.2	-	3N	73E
2760 Mar 23	18:49:51	2537	589	9402	154	T+	pp	0.1516	2.6136	1.5466	363.3	227.6	98.0	1S	90E
2760 Sep 17	09:40:33	2540	589	9408	159	T-	pp	-0.2246	2.4459	1.4460	336.4	215.5	89.5	2S	136W
2761 Mar 13	02:01:36	2543	590	9414	164	P	a-	0.8496	1.3059	0.2925	285.3	118.5	-	4N	17W
2761 Sep 06	17:07:16	2546	590	9420	169	Nx	t-	-1.0189	1.0145	-0.0371	277.4	-	-	7S	114E

2762 Feb 01	05:14:40	2548	591	9425	136	N	-a	-1.1776	0.6820	-0.2878	207.7	-	-	16N	65W
2762 Mar 02	15:33:54	2549	591	9426	174	N	a-	1.4806	0.1275	-0.8450	95.3	-	-	9N	140E
2762 Jul 28	03:24:12	2552	592	9431	141	N	-t	1.0682	0.9300	-0.1334	273.2	-	-	18S	39W
2763 Jan 21	20:23:32	2555	592	9437	146	P	-a	-0.5347	1.8735	0.8800	309.1	182.4	-	19N	67E
2763 Jul 17	07:43:36	2558	593	9443	151	T+	pp	0.2696	2.3730	1.3539	346.0	218.2	84.4	21S	103W
2764 Jan 11	06:57:43	2561	593	9449	156	T+	pp	0.1577	2.5931	1.5447	351.2	221.8	95.8	22N	92W
2764 Jul 05	19:15:47	2564	594	9455	161	P	a-	-0.5030	1.9181	0.9517	310.1	188.3	-	23S	83E
2764 Dec 30	10:14:03	2567	595	9461	166	P	t-	0.8767	1.2978	0.2016	312.5	107.2	-	24N	143W
2765 May 27	04:37:25	2569	595	9466	133	N	-a	1.2943	0.4579	-0.4919	174.0	-	-	20S	59W
2765 Jun 25	11:39:29	2570	595	9467	171	N	a-	-1.2132	0.6026	-0.3392	195.7	-	-	25S	163W
2765 Nov 19	15:38:15	2572	596	9472	138	N	-t	-1.4373	0.2579	-0.8156	151.6	-	-	18N	133E
2765 Dec 19	09:20:52	2573	596	9473	176	N	t-	1.5466	0.0699	-1.0286	82.2	-	-	25N	131W
2766 May 16	19:38:14	2575	596	9478	143	P	-a	0.6031	1.7461	0.7564	309.2	176.2	-	19S	76E
2766 Nov 08	22:09:26	2579	597	9484	148	P	-a	-0.6695	1.6373	0.6221	309.0	165.1	-	16N	34E
2767 May 06	04:28:50	2582	598	9490	153	T-	pp	-0.1467	2.6129	1.5649	359.0	227.0	98.8	17S	57W
2767 Oct 29	11:31:49	2585	598	9496	158	T+	p-	0.0635	2.7248	1.7578	322.0	212.2	98.3	13N	166W
2768 Apr 24	06:18:22	2588	599	9502	163	P	t-	-0.8992	1.2507	0.1662	309.7	98.5	-	14S	85W
2768 Oct 18	03:55:33	2591	600	9508	168	P	a-	0.7601	1.4424	0.4839	278.4	141.8	-	10N	52W
2769 Mar 14	15:02:23	2593	600	9513	135	N	-t	1.3026	0.4953	-0.5590	200.8	-	-	3N	148E
2769 Sep 08	07:56:47	2596	601	9519	140	N	-a	-1.1596	0.7373	-0.2767	232.3	-	-	6S	108W
2769 Oct 07	18:39:31	2597	601	9520	178	N	a-	1.5105	0.0829	-0.9098	80.2	-	-	7N	87E
2770 Mar 04	00:11:37	2600	601	9525	145	P	-a	0.5428	1.8620	0.8620	312.7	183.1	-	7N	11E
2770 Aug 28	13:27:12	2603	602	9531	150	T	-t	-0.4331	2.0942	1.0330	355.1	210.4	29.6	10S	170E
2771 Feb 21	14:47:52	2606	603	9537	155	T-	p-	-0.1527	2.5622	1.5932	318.3	208.4	93.1	11N	152E
2771 Aug 17	14:04:17	2609	603	9543	160	T	t-	0.3232	2.3002	1.2303	366.3	223.0	73.9	13S	161E
2772 Feb 11	06:27:45	2612	604	9549	165	P	a-	-0.8304	1.3256	0.3430	274.7	123.0	-	14N	83W
2772 Aug 05	17:00:30	2615	604	9555	170	N	t-	1.0649	0.9202	-0.1117	261.7	-	-	16S	117E
2773 Jan 01	03:19:27	2618	605	9560	137	N	-a	1.3068	0.4927	-0.5718	201.3	-	-	24N	38W
2773 Jun 26	19:05:51	2621	606	9566	142	P	-a	-0.8077	1.3538	0.3978	275.6	131.8	-	24S	86E
2773 Dec 21	04:50:09	2624	606	9572	147	P	-t	0.6554	1.7067	0.6050	344.4	175.4	-	24N	62W
2774 Jun 16	12:01:37	2627	607	9578	152	T-	pp	-0.0668	2.7068	1.7634	317.3	211.2	98.5	23S	169W
2774 Dec 10	04:10:44	2630	607	9584	157	T-	pp	-0.0333	2.8412	1.7532	372.3	232.6	104.2	23N	54W
2775 Jun 06	04:01:51	2633	608	9590	162	P	a-	0.6856	1.5872	0.6127	296.2	160.7	-	22S	49W
2775 Nov 29	08:45:55	2636	609	9596	167	P	a-	-0.7280	1.5392	0.5055	308.6	153.6	-	21N	124W
2776 Apr 26	00:50:20	2639	609	9601	134	N	-t	-1.3111	0.4848	-0.5795	203.6	-	-	15S	2W
2776 May 25	14:38:58	2639	609	9602	172	N	t-	1.4962	0.1283	-0.9026	104.8	-	-	20S	151E
2776 Oct 19	11:08:51	2642	610	9607	139	N	-a	1.2487	0.5458	-0.4124	188.4	-	-	11N	160W
2776 Nov 17	20:37:52	2642	610	9608	177	N	a-	-1.3736	0.3275	-0.6522	151.8	-	-	18N	58E
2777 Apr 15	01:22:20	2645	610	9613	144	P	-t	-0.6114	1.7806	0.6926	347.8	185.3	-	10S	10W
2777 Oct 09	03:37:42	2648	611	9619	149	P	-a	0.5621	1.8079	0.8450	300.3	177.9	-	7N	47W

2778	Apr 04	02:31:45	2651	612	9625	154	T+	pp	0.1178	2.6726	1.6114	362.4	228.3	100.5	5S	26W
2778	Sep 28	17:10:56	2654	612	9631	159	T-	pp	-0.1682	2.5524	1.5465	339.7	218.5	95.2	2N	111E
2779	Mar 24	10:14:29	2657	613	9637	164	P	a-	0.8238	1.3503	0.3425	287.5	127.0	-	1S	141W
2779	Sep 18	00:04:51	2660	614	9643	169	P	t-	-0.9540	1.1362	0.0795	290.9	67.6	-	3S	9E
2780	Feb 12	14:04:28	2663	614	9648	136	N	-a	-1.1842	0.6696	-0.2993	206.0	-	-	13N	163E
2780	Mar 13	00:09:04	2664	614	9649	174	N	a-	1.4629	0.1583	-0.8109	105.7	-	-	4N	11E
2780	Aug 07	09:56:15	2666	615	9654	141	N	-t	1.1500	0.7795	-0.2830	253.5	-	-	15S	136W
2781	Feb 01	05:07:55	2669	615	9660	146	P	-a	-0.5412	1.8626	0.8673	309.5	181.8	-	17N	63W
2781	Jul 27	14:38:56	2672	616	9666	151	T	-p	0.3485	2.2265	1.2107	340.9	211.9	68.4	19S	153E
2782	Jan 21	15:23:00	2675	617	9672	156	T+	pp	0.1520	2.6049	1.5535	352.7	222.5	96.4	20N	143E
2782	Jul 17	02:35:26	2679	617	9678	161	T	a-	-0.4266	2.0568	1.0933	314.1	196.2	45.3	21S	26W
2783	Jan 10	18:17:59	2682	618	9684	166	P	t-	0.8680	1.3149	0.2166	314.5	111.0	-	23N	98E
2783	Jun 07	12:17:25	2684	618	9689	133	N	-a	1.3583	0.3401	-0.6090	151.8	-	-	21S	173W
2783	Jul 06	19:11:07	2685	619	9690	171	N	a-	-1.1430	0.7310	-0.2099	212.8	-	-	24S	85E
2783	Nov 30	23:31:58	2687	619	9695	138	N	-t	-1.4572	0.2214	-0.8522	140.6	-	-	20N	15E
2783	Dec 30	17:20:28	2688	619	9696	176	N	t-	1.5324	0.0961	-1.0025	96.0	-	-	24N	111E
2784	May 27	03:08:51	2691	620	9701	143	P	-a	0.6668	1.6297	0.6391	304.1	165.7	-	21S	36W
2784	Nov 19	06:20:10	2694	620	9707	148	P	-a	-0.6932	1.5936	0.5788	305.5	159.9	-	19N	87W
2785	May 16	11:39:37	2697	621	9713	153	T-	pp	-0.0850	2.7263	1.6782	361.1	229.3	102.8	19S	164W
2785	Nov 08	19:50:38	2700	622	9719	158	T+	pp	0.0321	2.7831	1.8149	321.8	212.1	98.7	17N	69E
2786	May 05	13:19:48	2703	622	9725	163	P	t-	-0.8411	1.3560	0.2742	318.6	124.6	-	17S	170E
2786	Oct 29	12:07:52	2706	623	9731	168	P	a-	0.7239	1.5108	0.5485	283.1	149.6	-	14N	175W
2787	Mar 25	22:56:41	2709	623	9736	135	N	-t	1.3268	0.4481	-0.6004	191.0	-	-	1S	29E
2787	Apr 24	13:54:14	2709	624	9737	173	N	t-	-1.5381	0.0691	-0.9968	79.9	-	-	14S	162E
2787	Sep 19	15:14:13	2712	624	9742	140	N	-a	-1.2258	0.6189	-0.4009	216.4	-	-	2S	142E
2787	Oct 19	02:29:23	2713	624	9743	178	N	a-	1.4715	0.1574	-0.8412	110.2	-	-	11N	30W
2788	Mar 14	08:36:47	2715	625	9748	145	P	-a	0.5601	1.8277	0.8326	310.0	180.4	-	3N	116W
2788	Sep 07	20:12:08	2718	625	9754	150	P	-t	-0.5099	1.9553	0.8900	350.7	201.0	-	6S	68E
2789	Mar 03	23:29:47	2721	626	9760	155	T-	p-	-0.1390	2.5860	1.6194	318.2	208.8	94.1	6N	22E
2789	Aug 27	20:38:50	2725	627	9766	160	T+	pp	0.2407	2.4519	1.3813	369.6	228.5	89.7	9S	62E
2790	Feb 21	15:10:30	2728	627	9772	165	P	a-	-0.8225	1.3402	0.3573	276.3	125.5	-	10N	146E
2790	Aug 16	23:52:46	2731	628	9778	170	P	t-	0.9836	1.0683	0.0385	276.6	46.4	-	12S	14E
2791	Jan 12	11:38:07	2734	628	9783	137	N	-a	1.3167	0.4764	-0.5915	199.0	-	-	23N	161W
2791	Feb 11	02:59:29	2734	628	9784	175	N	a-	-1.5669	0.0009	-1.0347	8.9	-	-	13N	31W
2791	Jul 08	02:32:19	2737	629	9789	142	P	-a	-0.8775	1.2244	0.2712	265.3	110.6	-	23S	25W
2792	Jan 01	12:48:21	2740	630	9795	147	P	-t	0.6683	1.6840	0.5803	343.4	172.6	-	24N	180E
2792	Jun 26	19:36:04	2743	630	9801	152	T-	-p	-0.1365	2.5788	1.6359	316.5	209.9	95.5	23S	79E
2792	Dec 20	12:11:29	2746	631	9807	157	T-	pp	-0.0185	2.8683	1.7804	371.7	232.3	104.2	23N	172W
2793	Jun 16	11:27:17	2749	632	9813	162	P	a-	0.6193	1.7094	0.7338	303.7	172.9	-	23S	160W
2793	Dec 09	17:03:52	2753	632	9819	167	P	a-	-0.7101	1.5716	0.5387	309.7	157.3	-	22N	113E

2794 May 07	08:01:56	2755	633	9824	134	N	-t	-1.3691	0.3780	-0.6857	182.0	-	-	18S	110W
2794 Jun 05	21:43:52	2756	633	9825	172	N	t-	1.4334	0.2442	-0.7879	143.5	-	-	21S	46E
2794 Oct 30	19:23:23	2758	633	9830	139	N	-a	1.2817	0.4862	-0.4739	178.8	-	-	15N	76E
2794 Nov 29	05:08:03	2759	633	9831	177	N	a-	-1.3518	0.3677	-0.6124	159.9	-	-	20N	69W
2795 Apr 26	08:31:25	2762	634	9836	144	P	-t	-0.6631	1.6839	0.5995	341.8	175.0	-	14S	117W
2795 Oct 20	11:41:08	2765	635	9842	149	P	-a	0.6047	1.7319	0.7645	297.6	171.8	-	11N	168W
2796 Apr 14	10:05:52	2768	635	9848	154	T+	pp	0.0770	2.7446	1.6893	361.3	228.8	102.6	10S	140W
2796 Oct 09	00:47:06	2771	636	9854	159	T-	pp	-0.1172	2.6488	1.6369	342.4	220.6	98.8	6N	3W
2797 Apr 03	18:20:51	2774	637	9860	164	P	a-	0.7919	1.4060	0.4040	290.2	136.3	-	5S	97E
2797 Sep 28	07:07:51	2777	637	9866	169	P	t-	-0.8938	1.2493	0.1872	302.4	102.4	-	1N	97W
2798 Feb 22	22:50:03	2780	638	9871	136	N	-a	-1.1946	0.6497	-0.3178	203.3	-	-	9N	32E
2798 Mar 24	08:36:36	2781	638	9872	174	N	a-	1.4388	0.2006	-0.7649	118.4	-	-	0S	116W
2798 Aug 18	16:31:24	2783	638	9877	141	N	-t	1.2294	0.6335	-0.4285	231.5	-	-	12S	125E
2799 Feb 12	13:49:58	2786	639	9883	146	P	-a	-0.5493	1.8483	0.8519	309.7	181.1	-	13N	167E
2799 Aug 07	21:37:34	2790	640	9889	151	T	-t	0.4257	2.0835	1.0704	335.1	204.1	41.2	16S	49E
2800 Feb 01	23:47:07	2793	640	9895	156	T+	pp	0.1461	2.6170	1.5633	354.1	223.3	97.0	17N	18E
2800 Jul 27	09:56:33	2796	641	9901	161	T	a-	-0.3506	2.1950	1.2339	317.2	202.4	68.4	19S	135W

29TH CENTURY CE

In the 29th century CE the total number of lunar eclipses will be 259 lunar eclipses: 100 penumbral lunar eclipses, 102 partial lunar eclipses, 57 total lunar eclipses (48 central total lunar eclipses, 9 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
	ECLIPSE														
2801 Jan 21	02:23:39	2799	642	9907	166	P	t-	0.8610	1.3286	0.2288	316.2	114.0	-	21N	22W
2801 Jun 17	19:51:45	2802	642	9912	133	N	-a	1.4266	0.2145	-0.7343	122.2	-	-	22S	75E
2801 Jul 17	02:40:09	2802	642	9913	171	N	a-	-1.0705	0.8638	-0.0767	228.1	-	-	22S	26W

2801	Dec 11	07:34:16	2805	643	9918	138	N	-t	-1.4709	0.1962	-0.8772	132.3	-	-	22N	104W
2802	Jan 10	01:25:11	2806	643	9919	176	N	t-	1.5217	0.1154	-0.9826	104.8	-	-	23N	8W
2802	Jun 07	10:32:20	2808	643	9924	143	P	-a	0.7354	1.5046	0.5128	297.7	151.9	-	22S	146W
2802	Nov 30	14:39:11	2811	644	9930	148	P	-a	-0.7110	1.5605	0.5462	302.6	155.7	-	21N	149E
2803	May 27	18:42:55	2815	645	9936	153	T-	pp	-0.0178	2.8497	1.8013	362.6	230.7	104.8	21S	91E
2803	Nov 20	04:17:05	2818	645	9942	158	T+	pp	0.0068	2.8301	1.8607	321.5	211.9	98.7	20N	56W
2804	May 15	20:15:08	2821	646	9948	163	P	t-	-0.7776	1.4712	0.3920	327.4	146.4	-	20S	67E
2804	Nov 08	20:25:59	2824	647	9954	168	P	a-	0.6928	1.5697	0.6036	287.1	155.7	-	17N	61E
2805	Apr 05	06:45:49	2827	647	9959	135	N	-t	1.3557	0.3919	-0.6506	178.8	-	-	5S	88W
2805	May 04	21:08:06	2827	647	9960	173	N	t-	-1.4820	0.1691	-0.8912	123.5	-	-	17S	54E
2805	Sep 29	22:36:34	2830	648	9965	140	N	-a	-1.2870	0.5096	-0.5162	199.4	-	-	2N	31E
2805	Oct 29	10:25:31	2831	648	9966	178	N	a-	1.4380	0.2218	-0.7827	130.6	-	-	15N	149W
2806	Mar 25	16:54:38	2833	648	9971	145	P	-a	0.5841	1.7812	0.7912	306.7	176.7	-	1S	120E
2806	Sep 19	03:03:27	2837	649	9977	150	P	-t	-0.5809	1.8274	0.7576	345.7	190.1	-	2S	35W
2807	Mar 15	08:04:41	2840	650	9983	155	T-	p-	-0.1195	2.6206	1.6567	318.2	209.4	95.3	2N	107W
2807	Sep 08	03:21:10	2843	650	9989	160	T+	pp	0.1642	2.5927	1.5211	371.6	232.0	98.8	5S	39W
2808	Mar 03	23:46:47	2846	651	9995	165	P	a-	-0.8097	1.3637	0.3806	278.5	129.4	-	6N	17E
2808	Aug 27	06:51:51	2849	652	10001	170	P	t-	0.9066	1.2088	0.1805	288.8	98.1	-	9S	91W
2809	Jan 22	19:56:10	2852	652	10006	137	N	-h	1.3265	0.4597	-0.6108	196.4	-	-	21N	76E
2809	Feb 21	11:23:19	2853	652	10007	175	N	h-	-1.5609	0.0126	-1.0244	32.7	-	-	9N	157W
2809	Jul 18	09:56:42	2855	653	10012	142	P	-a	-0.9495	1.0912	0.1401	253.5	80.9	-	22S	135W
2810	Jan 11	20:50:23	2859	653	10018	147	P	-t	0.6780	1.6668	0.5619	342.7	170.5	-	22N	61E
2810	Jul 08	03:06:00	2862	654	10024	152	T-	-p	-0.2101	2.4438	1.5008	315.0	207.5	89.7	23S	33W
2810	Dec 31	20:18:15	2865	655	10030	157	T-	pp	-0.0080	2.8871	1.8001	370.9	231.9	104.1	23N	68E
2811	Jun 27	18:46:44	2868	655	10036	162	P	a-	0.5485	1.8402	0.8627	311.0	183.9	-	23S	91E
2811	Dec 21	01:29:05	2872	656	10042	167	P	a-	-0.6972	1.5946	0.5630	310.0	159.7	-	23N	11W
2812	May 17	15:05:02	2874	657	10047	134	N	-t	-1.4329	0.2606	-0.8024	153.0	-	-	21S	145E
2812	Jun 16	04:41:44	2875	657	10048	172	N	t-	1.3655	0.3694	-0.6640	175.1	-	-	22S	58W
2812	Nov 10	03:44:32	2878	657	10053	139	N	-a	1.3096	0.4360	-0.5261	170.0	-	-	19N	49W
2812	Dec 09	13:44:26	2878	657	10054	177	N	a-	-1.3348	0.3990	-0.5813	165.8	-	-	21N	164E
2813	May 06	15:33:43	2881	658	10059	144	P	-t	-0.7204	1.5768	0.4962	334.5	161.9	-	17S	138E
2813	Oct 30	19:50:29	2884	659	10065	149	P	-a	0.6419	1.6660	0.6940	295.2	165.9	-	15N	70E
2814	Apr 25	17:33:01	2887	659	10071	154	T+	pp	0.0296	2.8284	1.7792	360.0	228.9	103.9	13S	108E
2814	Oct 20	08:29:39	2890	660	10077	159	T-	pp	-0.0725	2.7341	1.7160	344.8	222.0	100.9	10N	119W
2815	Apr 15	02:21:25	2894	660	10083	164	P	a-	0.7545	1.4716	0.4754	293.4	145.8	-	9S	23W
2815	Oct 09	14:17:12	2897	661	10089	169	P	t-	-0.8391	1.3524	0.2850	312.1	124.8	-	6N	155E
2816	Mar 05	07:31:05	2900	662	10094	136	N	-a	-1.2088	0.6229	-0.3431	199.6	-	-	5N	98W
2816	Apr 03	16:58:37	2900	662	10095	174	N	a-	1.4103	0.2510	-0.7109	131.6	-	-	4S	119E
2816	Aug 28	23:12:56	2903	662	10100	141	N	-t	1.3038	0.4968	-0.5649	207.3	-	-	8S	24E
2816	Sep 27	14:42:08	2903	662	10101	179	Nb	t-	-1.5723	0.0137	-1.0667	36.5	-	-	1N	150E

2817 Feb 22	22:27:37	2906	663	10106	146	P	-a	-0.5605	1.8281	0.8308	309.6	179.9	-	9N	38E
2817 Aug 18	04:40:13	2909	664	10112	151	P	-t	0.5003	1.9455	0.9346	328.6	194.9	-	12S	57W
2818 Feb 12	08:07:32	2913	664	10118	156	T+	pp	0.1379	2.6329	1.5775	355.4	224.1	97.8	14N	107W
2818 Aug 07	17:20:34	2916	665	10124	161	T	p-	-0.2767	2.3298	1.3704	319.5	206.9	82.0	16S	114E
2819 Feb 01	10:26:23	2919	666	10130	166	P	t-	0.8520	1.3453	0.2449	318.0	117.8	-	18N	141W
2819 Jun 29	03:22:43	2922	666	10135	133	Ne	-a	1.4971	0.0855	-0.8638	78.2	-	-	22S	37W
2819 Jul 28	10:10:32	2923	666	10136	171	P	a-	-0.9992	0.9949	0.0539	241.5	50.2	-	20S	138W
2819 Dec 22	15:42:41	2925	667	10141	138	N	-t	-1.4798	0.1793	-0.8932	126.3	-	-	22N	136E
2820 Jan 21	09:30:47	2926	667	10142	176	N	t-	1.5118	0.1329	-0.9637	112.2	-	-	21N	128W
2820 Jun 17	17:49:28	2929	667	10147	143	P	-a	0.8084	1.3714	0.3780	289.7	133.6	-	23S	106E
2820 Dec 10	23:04:57	2932	668	10153	148	P	-a	-0.7239	1.5365	0.5231	300.2	152.5	-	22N	24E
2821 Jun 07	01:37:34	2935	669	10159	153	T+	pp	0.0557	2.7805	1.7315	363.4	231.0	104.4	23S	12W
2821 Nov 30	12:51:14	2938	669	10165	158	T-	pp	-0.0125	2.8202	1.8498	321.2	211.6	98.5	22N	176E
2822 May 27	03:00:25	2942	670	10171	163	P	t-	-0.7058	1.6016	0.5250	336.2	165.9	-	22S	33W
2822 Nov 20	04:52:35	2945	671	10177	168	P	a-	0.6690	1.6153	0.6453	290.2	160.1	-	20N	65W
2823 Apr 16	14:27:26	2948	671	10182	135	N	-t	1.3912	0.3237	-0.7126	162.8	-	-	9S	156E
2823 May 16	04:14:37	2948	671	10183	173	N	t-	-1.4192	0.2816	-0.7732	157.1	-	-	20S	52W
2823 Oct 11	06:05:10	2951	672	10188	140	N	-a	-1.3421	0.4117	-0.6203	181.7	-	-	6N	82W
2823 Nov 09	18:28:27	2951	672	10189	178	N	a-	1.4106	0.2751	-0.7353	145.4	-	-	18N	90E
2824 Apr 05	01:07:07	2954	673	10194	145	P	-a	0.6130	1.7254	0.7408	302.8	172.1	-	6S	4W
2824 Sep 29	10:00:51	2957	673	10200	150	P	-t	-0.6462	1.7099	0.6355	340.3	178.0	-	2N	140W
2825 Mar 25	16:34:35	2961	674	10206	155	T-	p-	-0.0956	2.6630	1.7018	318.2	209.9	96.5	2S	125E
2825 Sep 18	10:09:01	2964	675	10212	160	T+	pp	0.0918	2.7263	1.6534	372.7	233.9	103.7	1S	141W
2826 Mar 15	08:18:06	2967	675	10218	165	P	a-	-0.7933	1.3936	0.4109	281.1	134.1	-	1N	111W
2826 Sep 07	13:57:31	2971	676	10224	170	P	h-	0.8337	1.3419	0.3149	298.7	126.7	-	5S	162E
2827 Feb 03	04:12:27	2973	676	10229	137	N	-h	1.3372	0.4410	-0.6315	193.2	-	-	18N	47W
2827 Mar 04	19:41:25	2974	676	10230	175	N	h-	-1.5509	0.0315	-1.0066	51.7	-	-	5N	79E
2827 Jul 29	17:23:42	2977	677	10235	142	P	-a	-1.0198	0.9613	0.0118	240.8	23.8	-	19S	114E
2827 Aug 28	01:05:31	2977	677	10236	180	Nb	a-	1.5210	0.0527	-0.9185	63.1	-	-	8S	4W
2828 Jan 23	04:52:40	2980	678	10241	147	P	-t	0.6878	1.6492	0.5438	341.8	168.3	-	20N	58W
2828 Jul 18	10:35:25	2983	678	10247	152	T	-p	-0.2839	2.3087	1.3650	312.9	203.9	80.6	21S	144W
2829 Jan 11	04:27:21	2987	679	10253	157	T+	pp	0.0011	2.8990	1.8134	370.0	231.5	104.0	22N	53W
2829 Jul 08	02:03:03	2990	680	10259	162	P	a-	0.4755	1.9753	0.9955	317.7	193.5	-	22S	17W
2829 Dec 31	09:58:26	2993	680	10265	167	P	a-	-0.6872	1.6121	0.5824	310.0	161.5	-	22N	137W
2830 May 28	21:58:35	2996	681	10270	134	N	-t	-1.5034	0.1311	-0.9316	110.0	-	-	23S	42E
2830 Jun 27	11:33:26	2997	681	10271	172	N	t-	1.2930	0.5033	-0.5320	202.5	-	-	22S	160W
2830 Nov 21	12:13:54	2999	682	10276	139	N	-a	1.3313	0.3971	-0.5669	162.9	-	-	21N	175W
2830 Dec 20	22:26:30	3000	682	10277	177	N	a-	-1.3220	0.4224	-0.5578	169.9	-	-	22N	35E
2831 May 17	22:27:39	3003	682	10282	144	P	-t	-0.7846	1.4573	0.3803	325.6	144.2	-	20S	35E
2831 Nov 11	04:07:05	3006	683	10288	149	P	-a	0.6730	1.6114	0.6348	293.1	160.4	-	18N	54W

2832	May 06	00:53:22	3009	683	10294	154	T-	pp	-0.0243	2.8352	1.7920	358.3	228.4	103.9	17S	1W
2832	Oct 30	16:19:35	3013	684	10300	159	T-	pp	-0.0343	2.8073	1.7830	346.8	222.9	101.9	14N	124E
2833	Apr 25	10:13:54	3016	685	10306	164	P	a-	0.7096	1.5512	0.5608	297.1	155.9	-	13S	141W
2833	Oct 19	21:34:06	3019	685	10312	169	P	t-	-0.7907	1.4440	0.3711	320.3	140.9	-	10N	45E
2834	Mar 16	16:06:01	3022	686	10317	136	N	-a	-1.2283	0.5863	-0.3779	194.4	-	-	0N	133E
2834	Apr 15	01:12:27	3022	686	10318	174	N	a-	1.3749	0.3143	-0.6440	146.1	-	-	8S	5W
2834	Sep 09	06:01:01	3025	687	10323	141	N	-t	1.3731	0.3697	-0.6921	180.6	-	-	4S	78W
2834	Oct 08	21:43:33	3026	687	10324	179	N	t-	-1.5145	0.1210	-0.9619	107.5	-	-	5N	44E
2835	Mar 06	06:59:24	3029	687	10329	146	P	-a	-0.5762	1.7996	0.8018	309.1	178.1	-	5N	90W
2835	Aug 29	11:49:17	3032	688	10335	151	P	-t	0.5705	1.8159	0.8067	321.6	184.6	-	9S	164W
2836	Feb 23	16:24:22	3035	689	10341	156	T+	pp	0.1275	2.6526	1.5960	356.7	225.0	98.7	10N	130E
2836	Aug 18	00:46:54	3039	689	10347	161	T-	p-	-0.2039	2.4627	1.5044	321.1	210.2	90.7	13S	2E
2837	Feb 11	18:28:11	3042	690	10353	166	P	t-	0.8424	1.3630	0.2626	319.8	121.8	-	14N	99E
2837	Aug 07	17:40:56	3045	691	10359	171	P	a-	-0.9279	1.1262	0.1843	253.4	91.2	-	17S	110E
2838	Jan 01	23:56:47	3048	691	10364	138	N	-t	-1.4853	0.1686	-0.9025	122.3	-	-	21N	14E
2838	Jan 31	17:37:20	3049	691	10365	176	N	t-	1.5016	0.1504	-0.9441	118.9	-	-	19N	112E
2838	Jun 29	01:01:03	3051	692	10370	143	P	-a	0.8851	1.2317	0.2361	280.0	108.1	-	22S	1W
2838	Dec 22	07:37:12	3055	693	10376	148	P	-a	-0.7324	1.5204	0.5081	298.3	150.3	-	23N	102W
2839	Jun 18	08:27:16	3058	693	10382	153	T+	pp	0.1327	2.6397	1.5897	363.4	229.8	100.8	23S	113W
2839	Dec 11	21:30:22	3061	694	10388	158	T-	pp	-0.0279	2.7923	1.8210	320.9	211.2	98.3	23N	48E
2840	Jun 06	09:41:58	3065	695	10394	163	P	t-	-0.6306	1.7384	0.6642	344.2	182.4	-	23S	133W
2840	Nov 30	13:24:40	3068	695	10400	168	P	a-	0.6501	1.6518	0.6782	292.8	163.4	-	22N	168E
2841	Apr 26	22:02:26	3071	696	10405	135	N	-t	1.4327	0.2445	-0.7856	141.9	-	-	13S	42E
2841	May 26	11:15:29	3071	696	10406	173	N	t-	-1.3507	0.4047	-0.6449	185.5	-	-	22S	157W
2841	Oct 21	13:40:20	3074	696	10411	140	N	-a	-1.3910	0.3250	-0.7132	163.5	-	-	10N	164E
2841	Nov 20	02:38:07	3075	696	10412	178	N	a-	1.3890	0.3175	-0.6986	156.2	-	-	21N	31W
2842	Apr 16	09:12:01	3078	697	10417	145	P	-a	0.6488	1.6571	0.6777	298.2	166.0	-	10S	125W
2842	Oct 10	17:06:28	3081	698	10423	150	P	-t	-0.7044	1.6053	0.5263	334.8	165.2	-	6N	113E
2843	Apr 06	00:55:39	3084	698	10429	155	T-	pp	-0.0641	2.7193	1.7609	318.3	210.5	97.7	6S	1W
2843	Sep 29	17:06:56	3088	699	10435	160	T+	pp	0.0269	2.8460	1.7718	372.9	234.5	105.6	3N	114E
2844	Mar 25	16:41:24	3091	700	10441	165	P	a-	-0.7707	1.4350	0.4526	284.5	140.2	-	3S	123E
2844	Sep 17	21:10:25	3094	700	10447	170	P	h-	0.7655	1.4665	0.4404	306.7	146.5	-	1S	54E
2845	Feb 13	12:25:10	3097	701	10452	137	N	-h	1.3503	0.4177	-0.6561	189.0	-	-	14N	170W
2845	Mar 15	03:52:04	3098	701	10453	175	N	h-	-1.5358	0.0596	-0.9790	71.2	-	-	1N	44W
2845	Aug 09	00:51:20	3101	702	10458	142	N	-a	-1.0902	0.8317	-0.1169	226.6	-	-	17S	2E
2845	Sep 07	08:36:27	3101	702	10459	180	N	a-	1.4528	0.1774	-0.7931	114.1	-	-	4S	117W
2846	Feb 02	12:54:01	3104	702	10464	147	P	-t	0.6980	1.6302	0.5252	340.6	165.9	-	17N	177W
2846	Jul 29	18:03:10	3107	703	10470	152	T	-a	-0.3589	2.1718	1.2267	310.1	199.0	66.6	19S	104E
2847	Jan 22	12:39:33	3111	704	10476	157	T+	pp	0.0085	2.8844	1.8010	369.0	231.1	103.9	20N	174W
2847	Jul 19	09:16:15	3114	704	10482	162	T	p-	0.4007	2.1140	1.1313	323.7	201.7	53.9	20S	124W

2848	Jan 11	18:31:24	3117	705	10488	167	P	a-	-0.6793	1.6254	0.5979	309.8	162.7	-	21N	96E
2848	Jul 07	18:21:07	3121	706	10494	172	N	t-	1.2176	0.6428	-0.3947	226.6	-	-	21S	99E
2848	Dec 01	20:49:45	3124	706	10499	139	N	-a	1.3483	0.3669	-0.5990	157.0	-	-	23N	58E
2848	Dec 31	07:13:10	3124	706	10500	177	N	a-	-1.3127	0.4392	-0.5405	172.7	-	-	22N	95W
2849	May 28	05:14:48	3127	707	10505	144	P	-t	-0.8543	1.3275	0.2541	314.8	120.0	-	22S	66W
2849	Nov 21	12:30:16	3130	707	10511	149	P	-a	0.6982	1.5675	0.5862	291.5	155.7	-	21N	178W
2850	May 17	08:08:06	3134	708	10517	154	T-	pp	-0.0839	2.7229	1.6855	356.1	227.2	102.3	20S	110W
2850	Nov 11	00:15:55	3137	709	10523	159	T-	pp	-0.0022	2.8693	1.8389	348.6	223.6	102.2	17N	5E
2851	May 06	18:01:01	3140	709	10529	164	P	a-	0.6594	1.6404	0.6556	300.9	165.6	-	16S	102E
2851	Oct 31	04:58:40	3144	710	10535	169	P	t-	-0.7487	1.5236	0.4455	327.1	152.9	-	13N	66W
2852	Mar 27	00:35:07	3147	711	10540	136	N	-a	-1.2523	0.5411	-0.4211	187.6	-	-	4S	5E
2852	Apr 25	09:20:32	3147	711	10541	174	N	a-	1.3350	0.3858	-0.5690	160.6	-	-	12S	127W
2852	Sep 19	12:56:11	3150	711	10546	141	N	-t	1.4370	0.2528	-0.8094	150.6	-	-	0N	177E
2852	Oct 19	04:52:48	3151	711	10547	179	N	t-	-1.4622	0.2181	-0.8672	143.1	-	-	9N	63W
2853	Mar 16	15:24:43	3154	712	10552	146	P	-a	-0.5966	1.7623	0.7642	308.2	175.4	-	1N	144E
2853	Sep 08	19:04:56	3157	713	10558	151	P	-h	0.6357	1.6954	0.6876	314.3	173.3	-	4S	86E
2854	Mar 06	00:33:03	3160	713	10564	156	T+	pp	0.1111	2.6832	1.6257	358.1	226.1	100.0	6N	7E
2854	Aug 29	08:19:01	3164	714	10570	161	T-	p-	-0.1356	2.5878	1.6301	321.9	212.1	96.0	9S	111W
2855	Feb 23	02:24:03	3167	715	10576	166	P	t-	0.8283	1.3884	0.2889	322.0	127.3	-	11N	20W
2855	Aug 19	01:14:43	3171	715	10582	171	P	a-	-0.8593	1.2527	0.3093	263.7	116.2	-	13S	4W
2856	Jan 13	08:12:49	3173	716	10587	138	N	-t	-1.4896	0.1595	-0.9094	118.7	-	-	20N	108W
2856	Feb 12	01:40:46	3174	716	10588	176	N	t-	1.4886	0.1728	-0.9188	126.9	-	-	15N	9W
2856	Jul 09	08:08:56	3177	717	10593	143	P	-a	0.9638	1.0887	0.0905	268.5	68.5	-	21S	107W
2857	Jan 01	16:14:09	3180	717	10599	148	P	-a	-0.7374	1.5103	0.4996	296.7	148.8	-	22N	130E
2857	Jun 28	15:09:03	3184	718	10605	153	T+	pp	0.2153	2.4887	1.4374	362.3	227.0	92.9	23S	147E
2857	Dec 22	06:16:03	3187	719	10611	158	T-	pp	-0.0379	2.7742	1.8023	320.6	210.9	98.0	23N	81W
2858	Jun 17	16:15:57	3190	719	10617	163	P	t-	-0.5494	1.8864	0.8142	351.7	196.8	-	24S	130E
2858	Dec 11	22:03:06	3194	720	10623	168	P	a-	0.6369	1.6777	0.7007	294.8	165.7	-	24N	40E
2859	May 08	05:30:24	3197	721	10628	135	N	-t	1.4801	0.1543	-0.8695	113.2	-	-	16S	69W
2859	Jun 06	18:11:10	3197	721	10629	173	N	t-	-1.2771	0.5371	-0.5073	210.2	-	-	24S	100E
2859	Nov 01	21:22:59	3200	721	10634	140	N	-a	-1.4328	0.2514	-0.7930	145.4	-	-	13N	49E
2859	Dec 01	10:54:24	3201	721	10635	178	N	a-	1.3737	0.3483	-0.6733	163.9	-	-	23N	154W
2860	Apr 26	17:11:05	3204	722	10640	145	P	-a	0.6901	1.5788	0.6046	292.8	158.3	-	13S	115E
2860	Oct 21	00:18:13	3207	723	10646	150	P	-t	-0.7572	1.5108	0.4272	329.2	151.4	-	10N	5E
2861	Apr 16	09:11:00	3210	723	10652	155	T-	pp	-0.0279	2.7843	1.8287	318.2	210.9	98.6	10S	124W
2861	Oct 10	00:12:23	3214	724	10658	160	T-	pp	-0.0323	2.8370	1.7612	372.5	234.0	105.2	7N	7E
2862	Apr 06	00:56:52	3217	725	10664	165	P	a-	-0.7422	1.4870	0.5051	288.5	147.2	-	7S	1W
2862	Sep 29	04:32:05	3221	725	10670	170	P	a-	0.7036	1.5799	0.5544	313.1	161.0	-	3N	57W
2863	Feb 24	20:33:11	3224	726	10675	137	N	-h	1.3666	0.3882	-0.6864	183.2	-	-	10N	69E
2863	Mar 26	11:55:09	3224	726	10676	175	N	h-	-1.5152	0.0975	-0.9415	91.0	-	-	4S	165W

2863	Aug 20	08:23:15	3227	727	10681	142	N	-a	-1.1572	0.7087	-0.2397	211.5	-	-	13S	111W
2863	Sep 18	16:14:31	3228	727	10682	180	N	a-	1.3898	0.2929	-0.6773	144.6	-	-	0S	128E
2864	Feb 13	20:52:02	3230	727	10687	147	P	-t	0.7109	1.6060	0.5020	339.0	162.8	-	14N	64E
2864	Aug 09	01:32:59	3234	728	10693	152	T	-a	-0.4319	2.0387	1.0917	306.7	192.9	44.2	16S	8W
2865	Feb 01	20:50:55	3237	729	10699	157	T+	pp	0.0171	2.8672	1.7867	367.8	230.7	103.7	17N	64E
2865	Jul 29	16:27:34	3241	729	10705	162	T	p-	0.3249	2.2548	1.2687	329.1	208.5	73.9	18S	129E
2866	Jan 22	03:05:55	3244	730	10711	167	P	a-	-0.6720	1.6373	0.6127	309.3	163.9	-	19N	31W
2866	Jul 19	01:05:51	3248	731	10717	172	N	t-	1.1399	0.7867	-0.2536	248.0	-	-	20S	1W
2866	Dec 13	05:31:15	3250	731	10722	139	N	-a	1.3612	0.3440	-0.6235	152.3	-	-	24N	71W
2867	Jan 11	16:01:34	3251	731	10723	177	N	a-	-1.3045	0.4538	-0.5250	175.0	-	-	20N	134E
2867	Jun 08	11:56:03	3254	732	10728	144	P	-t	-0.9289	1.1889	0.1188	301.9	83.6	-	24S	165W
2867	Dec 02	21:00:06	3257	732	10734	149	P	-a	0.7180	1.5334	0.5478	290.4	151.7	-	23N	56E
2868	May 27	15:16:48	3261	733	10740	154	T-	pp	-0.1492	2.6001	1.5685	353.3	224.9	98.3	22S	144E
2868	Nov 21	08:18:49	3264	734	10746	159	T+	pp	0.0239	2.8324	1.7961	350.2	224.0	102.1	20N	115W
2869	May 17	01:41:09	3268	735	10752	164	P	a-	0.6025	1.7420	0.7626	305.0	175.0	-	19S	12W
2869	Nov 10	12:31:33	3271	735	10758	169	P	t-	-0.7139	1.5899	0.5068	332.5	161.8	-	17N	178W
2870	Apr 07	08:55:23	3274	736	10763	136	N	-a	-1.2836	0.4827	-0.4776	178.3	-	-	8S	120W
2870	May 06	17:19:35	3275	736	10764	174	N	a-	1.2875	0.4711	-0.4804	175.8	-	-	16S	113E
2870	Sep 30	20:00:36	3278	736	10769	141	N	-t	1.4937	0.1490	-0.9137	116.5	-	-	5N	71E
2870	Oct 30	12:12:32	3278	737	10770	179	N	t-	-1.4177	0.3009	-0.7867	166.8	-	-	13N	173W
2871	Mar 27	23:42:36	3281	737	10775	146	P	-a	-0.6227	1.7145	0.7163	306.7	171.7	-	4S	19E
2871	Sep 20	02:28:04	3284	738	10781	151	P	-h	0.6957	1.5849	0.5780	307.0	161.2	-	0S	25W
2872	Mar 16	08:35:50	3288	738	10787	156	T+	pp	0.0904	2.7212	1.6635	359.4	227.1	101.3	1N	113W
2872	Sep 08	15:55:54	3291	739	10793	161	T-	pp	-0.0707	2.7069	1.7492	322.1	213.1	98.8	5S	134E
2873	Mar 05	10:15:32	3295	740	10799	166	P	t-	0.8106	1.4202	0.3221	324.7	133.9	-	6N	137W
2873	Aug 29	08:50:15	3298	741	10805	171	P	a-	-0.7923	1.3767	0.4311	272.9	134.8	-	10S	118W
2874	Jan 23	16:32:13	3301	741	10810	138	N	-t	-1.4919	0.1540	-0.9123	116.3	-	-	18N	128E
2874	Feb 22	09:42:44	3302	741	10811	176	N	t-	1.4738	0.1981	-0.8899	135.2	-	-	11N	129W
2874	Jul 20	15:14:06	3305	742	10816	143	N	-a	1.0434	0.9442	-0.0573	255.0	-	-	19S	147E
2875	Jan 13	00:53:37	3308	742	10822	148	P	-a	-0.7411	1.5025	0.4940	295.3	147.7	-	21N	2E
2875	Jul 09	21:48:39	3312	743	10828	153	T	-t	0.2989	2.3362	1.2832	360.2	222.2	79.5	22S	48E
2876	Jan 02	15:04:37	3315	744	10834	158	T-	pp	-0.0455	2.7605	1.7884	320.3	210.7	97.8	23N	148E
2876	Jun 27	22:47:30	3319	745	10840	163	P	t-	-0.4657	2.0390	0.9687	358.1	208.6	-	24S	33E
2876	Dec 22	06:45:01	3322	745	10846	168	P	a-	0.6270	1.6975	0.7174	296.5	167.5	-	24N	88W
2877	May 18	12:53:05	3325	746	10851	135	Ne	-t	1.5323	0.0556	-0.9623	68.2	-	-	18S	179W
2877	Jun 17	01:03:44	3326	746	10852	173	N	t-	-1.1999	0.6764	-0.3633	231.8	-	-	24S	1W
2877	Nov 12	05:12:14	3329	746	10857	140	N	-a	-1.4687	0.1885	-0.8619	127.2	-	-	17N	68W
2877	Dec 11	19:15:25	3329	747	10858	178	N	a-	1.3626	0.3714	-0.6553	169.5	-	-	24N	83E
2878	May 08	01:02:01	3332	747	10863	145	P	-a	0.7387	1.4871	0.5179	286.4	148.2	-	17S	2W
2878	Nov 01	07:39:26	3336	748	10869	150	P	-t	-0.8019	1.4311	0.3431	324.1	137.6	-	14N	105W

2879	Apr 27	17:17:57	3339	748	10875	155	T+	pp	0.0155	2.8059	1.8528	318.1	211.1	98.8	14S	114E
2879	Oct 21	07:27:41	3343	749	10881	160	T-	pp	-0.0839	2.7430	1.6659	371.6	232.9	103.4	11N	102W
2880	Apr 16	09:03:32	3346	750	10887	165	P	a-	-0.7070	1.5515	0.5699	293.1	155.2	-	11S	122W
2880	Oct 09	12:03:02	3350	751	10893	170	P	a-	0.6484	1.6810	0.6558	317.9	171.7	-	7N	170W
2881	Mar 07	04:34:04	3352	751	10898	137	N	-t	1.3879	0.3492	-0.7256	174.8	-	-	6N	51W
2881	Apr 05	19:47:57	3353	751	10899	175	N	t-	-1.4872	0.1489	-0.8902	112.2	-	-	8S	77E
2881	Aug 30	15:58:04	3356	752	10904	142	N	-a	-1.2221	0.5897	-0.3589	195.0	-	-	9S	135E
2881	Sep 28	23:59:31	3356	752	10905	180	N	a-	1.3317	0.3995	-0.5708	166.8	-	-	4N	11E
2882	Feb 24	04:46:29	3359	752	10910	147	P	-t	0.7268	1.5760	0.4739	336.9	158.9	-	10N	54W
2882	Aug 20	09:04:10	3363	753	10916	152	P	-a	-0.5035	1.9086	0.9590	302.6	185.4	-	12S	121W
2883	Feb 13	05:01:02	3366	754	10922	157	T+	pp	0.0275	2.8463	1.7694	366.5	230.2	103.5	13N	58W
2883	Aug 09	23:38:57	3370	755	10928	162	T+	pp	0.2499	2.3946	1.4044	333.6	213.9	86.6	15S	21E
2884	Feb 02	11:41:40	3373	755	10934	167	P	a-	-0.6649	1.6487	0.6275	308.9	165.0	-	16N	159W
2884	Jul 29	07:47:49	3377	756	10940	172	N	t-	1.0604	0.9342	-0.1093	267.2	-	-	17S	101W
2884	Dec 23	14:17:40	3380	756	10945	139	N	-a	1.3704	0.3278	-0.6411	149.0	-	-	25N	159E
2885	Jan 22	00:52:16	3381	757	10946	177	N	a-	-1.2981	0.4650	-0.5126	176.7	-	-	18N	3E
2885	Jun 18	18:33:05	3383	757	10951	144	Nx	-t	-1.0072	1.0438	-0.0231	286.7	-	-	24S	97E
2885	Dec 13	05:35:01	3387	758	10957	149	P	-a	0.7329	1.5080	0.5184	289.8	148.5	-	24N	71W
2886	Jun 07	22:21:26	3390	759	10963	154	T-	pp	-0.2187	2.4698	1.4436	349.7	221.5	91.4	23S	39E
2886	Dec 02	16:27:45	3394	759	10969	159	T+	pp	0.0442	2.7980	1.7562	351.8	224.3	101.8	22N	124E
2887	May 28	09:17:38	3398	760	10975	164	P	a-	0.5420	1.8506	0.8762	308.7	183.5	-	21S	125W
2887	Nov 21	20:10:17	3401	761	10981	169	P	t-	-0.6842	1.6468	0.5591	337.1	168.8	-	19N	68E
2888	Apr 17	17:09:10	3404	761	10986	136	N	-a	-1.3201	0.4148	-0.5436	166.4	-	-	12S	116E
2888	May 17	01:13:45	3405	761	10987	174	N	a-	1.2361	0.5641	-0.3845	190.4	-	-	18S	5W
2888	Oct 11	03:14:03	3408	762	10992	141	N	-t	1.5436	0.0577	-1.0056	72.9	-	-	9N	38W
2888	Nov 09	19:40:50	3408	762	10993	179	N	t-	-1.3793	0.3723	-0.7173	184.2	-	-	16N	75E
2889	Apr 07	07:51:16	3411	763	10998	146	P	-a	-0.6559	1.6537	0.6555	304.3	166.4	-	8S	103W
2889	Sep 30	09:59:34	3415	763	11004	151	P	-h	0.7496	1.4858	0.4795	299.7	148.7	-	4N	138W
2890	Mar 27	16:28:23	3418	764	11010	156	T+	pp	0.0619	2.7736	1.7158	360.7	228.3	102.7	3S	128E
2890	Sep 19	23:40:13	3422	765	11016	161	T-	pp	-0.0117	2.8154	1.8573	321.9	213.2	99.7	1S	18E
2891	Mar 16	17:57:50	3425	765	11022	166	P	t-	0.7856	1.4651	0.3689	328.1	142.4	-	2N	107E
2891	Sep 09	16:31:30	3429	766	11028	171	P	a-	-0.7303	1.4919	0.5436	280.6	148.9	-	5S	126E
2892	Feb 04	00:50:48	3432	767	11033	138	N	-t	-1.4952	0.1463	-0.9165	113.1	-	-	15N	4E
2892	Mar 04	17:39:16	3432	767	11034	176	N	t-	1.4542	0.2320	-0.8518	145.5	-	-	7N	112E
2892	Jul 30	22:16:22	3435	767	11039	143	N	-a	1.1243	0.7978	-0.2075	239.0	-	-	17S	42E
2892	Aug 29	07:53:45	3436	767	11040	181	N	a-	-1.4966	0.1025	-0.8786	88.6	-	-	10S	103W
2893	Jan 23	09:34:54	3439	768	11045	148	P	-a	-0.7437	1.4963	0.4904	294.0	146.9	-	18N	127W
2893	Jul 20	04:23:37	3442	769	11051	153	T	-t	0.3853	2.1789	1.1237	356.7	215.3	55.6	20S	49W
2894	Jan 12	23:56:16	3446	769	11057	158	T-	pp	-0.0508	2.7507	1.7788	320.0	210.5	97.6	21N	17E
2894	Jul 09	05:14:50	3449	770	11063	163	T	t-	-0.3782	2.1988	1.1299	363.4	218.3	57.5	22S	62W

2895 Jan 02	15:31:16	3453	771	11069	168	P	a-	0.6211	1.7097	0.7269	297.8	168.6	-	23N	142E
2895 Jun 28	07:53:50	3457	771	11075	173	N	t-	-1.1194	0.8219	-0.2134	250.8	-	-	24S	103W
2895 Nov 23	13:07:26	3460	772	11080	140	N	-a	-1.4991	0.1358	-0.9204	108.9	-	-	19N	174E
2895 Dec 23	03:40:19	3460	772	11081	178	N	a-	1.3552	0.3873	-0.6440	173.5	-	-	25N	41W
2896 May 18	08:48:20	3463	773	11086	145	P	-a	0.7916	1.3876	0.4232	279.0	135.6	-	19S	118W
2896 Nov 11	15:07:51	3467	773	11092	150	P	-t	-0.8402	1.3628	0.2707	319.4	123.6	-	17N	144E
2897 May 08	01:17:44	3470	774	11098	155	T+	pp	0.0648	2.7143	1.7635	317.8	210.9	98.1	17S	6W
2897 Oct 31	14:51:54	3474	775	11104	160	T-	pp	-0.1286	2.6617	1.5831	370.4	231.3	100.6	14N	147E
2898 Apr 27	17:02:12	3477	775	11110	165	P	a-	-0.6659	1.6267	0.6454	298.2	163.6	-	15S	118E
2898 Oct 20	19:43:12	3481	776	11116	170	P	a-	0.5999	1.7698	0.7449	321.6	179.7	-	11N	75E
2899 Mar 18	12:27:20	3484	777	11121	137	N	-t	1.4147	0.2998	-0.7747	163.0	-	-	2N	170W
2899 Apr 17	03:32:07	3485	777	11122	175	N	t-	-1.4531	0.2116	-0.8276	133.5	-	-	12S	39W
2899 Sep 10	23:39:26	3487	777	11127	142	N	-a	-1.2820	0.4802	-0.4692	177.7	-	-	5S	20E
2899 Oct 10	07:53:03	3488	778	11128	180	N	a-	1.2802	0.4943	-0.4764	183.5	-	-	8N	108W
2900 Mar 07	12:35:22	3491	778	11133	147	P	-t	0.7472	1.5373	0.4376	334.0	153.6	-	6N	172W
2900 Aug 31	16:38:02	3495	779	11139	152	P	-a	-0.5726	1.7835	0.8308	298.1	176.7	-	9S	126E

30TH CENTURY CE

In the 30th century CE the total number of lunar eclipses will be 249 lunar eclipses: 89 penumbral lunar eclipses, 97 partial lunar eclipses, 63 total lunar eclipses (50 central total lunar eclipses, 13 non-central total lunar eclipses).

CALENDAR	TD	ΔT	ΔT	LUNA	SAROS	ECL.	QSE	GAMMA	PEN	UM	PEN	PAR	TOTAL	ZEN	ZEN
DATE	OF	s	SIGMA	NUM	NUM	TYPE			MAG.	MAG.	DUR.	DUR.	DUR.	LAT	LONG
	GREATEST		S								m	m	m	°	°
	ECLIPSE														
2901 Feb 24	13:07:51	3498	780	11145	157	T+	pp	0.0413	2.8189	1.7462	365.1	229.7	103.3	9N	179W
2901 Aug 21	06:51:26	3502	780	11151	162	T+	pp	0.1762	2.5319	1.5372	337.4	217.9	94.8	12S	87W
2902 Feb 13	20:14:25	3505	781	11157	167	P	a-	-0.6547	1.6654	0.6481	308.6	166.7	-	13N	74E
2902 Aug 10	14:30:26	3509	782	11163	172	P	t-	0.9817	1.0805	0.0334	284.0	44.0	-	14S	158E

2903 Jan 04	23:07:13	3512	782	11168	139	N	-a	1.3776	0.3151	-0.6547	146.2	-	-	24N	29E
2903 Feb 03	09:41:36	3513	782	11169	177	N	a-	-1.2903	0.4783	-0.4975	178.7	-	-	15N	128W
2903 Jul 01	01:07:16	3516	783	11174	144	N	-t	-1.0876	0.8948	-0.1693	269.0	-	-	24S	1W
2903 Dec 25	14:13:33	3519	784	11180	149	P	-a	0.7446	1.4883	0.4950	289.4	145.9	-	24N	161E
2904 Jun 19	05:22:41	3523	784	11186	154	T	pp	-0.2920	2.3329	1.3117	345.3	216.6	80.4	24S	65W
2904 Dec 14	00:42:18	3526	785	11192	159	T+	pp	0.0593	2.7729	1.7259	353.2	224.6	101.5	23N	2E
2905 Jun 08	16:47:05	3530	786	11198	164	T	a-	0.4747	1.9716	1.0019	312.4	191.4	6.7	22S	123E
2905 Dec 03	03:57:23	3534	786	11204	169	P	t-	-0.6615	1.6906	0.5986	340.7	173.7	-	21N	47W
2906 Apr 30	01:14:07	3537	787	11209	136	N	-a	-1.3640	0.3334	-0.6233	150.5	-	-	16S	5W
2906 May 29	09:00:19	3537	787	11210	174	N	a-	1.1780	0.6693	-0.2768	205.1	-	-	20S	121W
2906 Nov 22	03:18:30	3541	788	11216	179	N	t-	-1.3479	0.4310	-0.6604	197.0	-	-	19N	38W
2907 Apr 19	15:51:18	3544	788	11221	146	P	-a	-0.6956	1.5807	0.5825	301.1	159.2	-	12S	137E
2907 Oct 12	17:40:03	3547	789	11227	151	P	-a	0.7969	1.3987	0.3928	292.8	135.9	-	8N	106E
2908 Apr 08	00:13:34	3551	790	11233	156	T+	pp	0.0281	2.8355	1.7780	361.9	229.2	103.8	7S	12E
2908 Oct 01	07:29:45	3555	790	11239	161	T+	pp	0.0433	2.7578	1.7989	321.3	212.6	99.1	3N	100W
2909 Mar 28	01:34:24	3558	791	11245	166	P	t-	0.7560	1.5181	0.4244	331.9	151.5	-	2S	7W
2909 Sep 21	00:16:49	3562	792	11251	171	P	a-	-0.6720	1.6005	0.6490	287.3	160.1	-	1S	9E
2910 Feb 15	09:08:05	3565	792	11256	138	N	-t	-1.5000	0.1354	-0.9234	108.5	-	-	11N	119W
2910 Mar 17	01:30:22	3565	793	11257	176	N	t-	1.4298	0.2744	-0.8047	157.1	-	-	3N	5W
2910 Aug 12	05:19:13	3568	793	11262	143	N	-h	1.2034	0.6548	-0.3547	220.6	-	-	14S	63W
2910 Sep 10	15:19:16	3569	793	11263	181	N	h-	-1.4380	0.2124	-0.7737	126.8	-	-	6S	145E
2911 Feb 04	18:15:53	3572	794	11268	148	P	-a	-0.7470	1.4887	0.4859	292.6	146.0	-	15N	104E
2911 Aug 01	10:59:06	3576	795	11274	153	P	-t	0.4705	2.0237	0.9661	352.1	206.1	-	17S	148W
2912 Jan 25	08:47:25	3579	795	11280	158	T-	-p	-0.0564	2.7400	1.7686	319.8	210.3	97.4	19N	114W
2912 Jul 20	11:43:01	3583	796	11286	163	T	tp	-0.2911	2.3579	1.2902	367.5	225.5	81.2	21S	159W
2913 Jan 14	00:18:19	3587	797	11292	168	P	a-	0.6164	1.7195	0.7344	299.0	169.5	-	22N	12E
2913 Jul 09	14:42:30	3590	797	11298	173	N	t-	-1.0366	0.9717	-0.0596	267.5	-	-	23S	156E
2913 Dec 04	21:09:00	3593	798	11303	140	N	-a	-1.5233	0.0940	-0.9675	91.3	-	-	21N	55E
2914 Jan 03	12:08:05	3594	798	11304	178	N	a-	1.3509	0.3971	-0.6383	176.2	-	-	24N	166W
2914 May 30	16:28:13	3597	799	11309	145	P	-a	0.8500	1.2783	0.3181	270.3	119.2	-	21S	128E
2914 Nov 23	22:44:25	3600	799	11315	150	P	-t	-0.8714	1.3075	0.2117	315.4	110.4	-	20N	31E
2915 May 20	09:10:01	3604	800	11321	155	T+	-p	0.1201	2.6117	1.6629	317.1	210.0	96.0	20S	123W
2915 Nov 12	22:26:41	3608	801	11327	160	T-	pp	-0.1647	2.5960	1.5163	369.0	229.6	97.4	18N	34E
2916 May 09	00:51:34	3611	801	11333	165	P	a-	-0.6178	1.7149	0.7337	303.6	172.4	-	18S	1E
2916 Nov 01	03:32:49	3615	802	11339	170	P	a-	0.5585	1.8457	0.8210	324.2	185.6	-	15N	43W
2917 Mar 29	20:11:49	3618	803	11344	137	N	-t	1.4477	0.2389	-0.8350	146.6	-	-	2S	74E
2917 Apr 28	11:05:42	3619	803	11345	175	N	t-	-1.4114	0.2881	-0.7511	155.1	-	-	15S	152W
2917 Sep 22	07:26:11	3622	803	11350	142	N	-a	-1.3377	0.3786	-0.5721	159.2	-	-	1S	97W
2917 Oct 21	15:54:55	3622	804	11351	180	N	a-	1.2349	0.5778	-0.3936	196.4	-	-	12N	132E
2918 Mar 18	20:16:44	3625	804	11356	147	P	-t	0.7736	1.4873	0.3906	330.0	146.1	-	1N	73E

2918	Sep 12	00:16:18	3629	805	11362	152	P	-a	-0.6374	1.6664	0.7100	293.2	167.0	-	5S	11E
2919	Mar 07	21:11:10	3633	806	11368	157	T+	pp	0.0586	2.7848	1.7168	363.5	229.0	102.8	5N	60E
2919	Sep 01	14:05:36	3636	806	11374	162	T+	pp	0.1051	2.6650	1.6653	340.4	220.6	99.8	8S	164E
2920	Feb 25	04:45:26	3640	807	11380	167	P	a-	-0.6426	1.6853	0.6724	308.5	168.7	-	9N	54W
2920	Aug 20	21:13:24	3644	808	11386	172	P	t-	0.9037	1.2255	0.1745	298.8	98.8	-	11S	58E
2921	Jan 15	07:59:23	3647	808	11391	139	N	-a	1.3827	0.3061	-0.6644	144.3	-	-	22N	102W
2921	Feb 13	18:30:03	3647	808	11392	177	N	a-	-1.2821	0.4924	-0.4813	180.8	-	-	12N	100E
2921	Jul 11	07:38:42	3650	809	11397	144	N	-t	-1.1701	0.7421	-0.3196	248.3	-	-	23S	97W
2922	Jan 04	22:55:33	3654	810	11403	149	P	-a	0.7530	1.4747	0.4780	289.5	144.1	-	23N	32E
2922	Jun 30	12:22:20	3658	810	11409	154	T	-p	-0.3674	2.1921	1.1755	340.0	210.2	63.1	23S	169W
2922	Dec 25	08:59:36	3661	811	11415	159	T+	pp	0.0714	2.7530	1.7015	354.6	225.0	101.2	23N	120W
2923	Jun 20	00:15:03	3665	812	11421	164	T	a-	0.4055	2.0965	1.1309	315.5	198.1	53.0	23S	12E
2923	Dec 14	11:49:22	3669	813	11427	169	P	t-	-0.6429	1.7267	0.6310	343.6	177.7	-	22N	164W
2924	May 10	09:12:06	3672	813	11432	136	N	-a	-1.4131	0.2426	-0.7127	129.6	-	-	19S	124W
2924	Jun 08	16:42:12	3672	813	11433	174	N	a-	1.1163	0.7816	-0.1625	219.0	-	-	22S	125E
2924	Dec 02	11:03:28	3676	814	11439	179	N	t-	-1.3217	0.4797	-0.6130	206.7	-	-	21N	153W
2925	Apr 29	23:41:55	3679	815	11444	146	P	-a	-0.7424	1.4949	0.4966	296.7	149.4	-	15S	19E
2925	Oct 23	01:29:49	3683	815	11450	151	P	-a	0.8371	1.3250	0.3192	286.5	123.5	-	12N	11W
2926	Apr 19	07:46:40	3686	816	11456	156	T-	pp	-0.0148	2.8596	1.8024	362.8	229.9	104.2	11S	101W
2926	Oct 12	15:28:24	3690	817	11462	161	T+	pp	0.0908	2.6713	1.7112	320.5	211.6	97.5	8N	140E
2927	Apr 08	09:00:52	3694	817	11468	166	P	t-	0.7185	1.5855	0.4945	336.4	161.8	-	7S	119W
2927	Oct 02	08:08:12	3697	818	11474	171	P	a-	-0.6191	1.6993	0.7443	293.0	169.0	-	3N	109W
2928	Feb 26	17:21:35	3700	819	11479	138	N	-t	-1.5082	0.1180	-0.9361	101.0	-	-	7N	117E
2928	Mar 27	09:14:28	3701	819	11480	176	N	t-	1.3992	0.3280	-0.7460	170.3	-	-	2S	122W
2928	Aug 22	12:22:18	3704	819	11485	143	N	-h	1.2809	0.5149	-0.4993	199.2	-	-	10S	169W
2928	Sep 20	22:48:29	3705	820	11486	181	N	h-	-1.3830	0.3161	-0.6755	153.8	-	-	2S	32E
2929	Feb 15	02:55:06	3708	820	11491	148	P	-a	-0.7523	1.4771	0.4780	290.9	144.6	-	12N	25W
2929	Aug 11	17:32:40	3711	821	11497	153	P	-t	0.5565	1.8674	0.8069	346.2	194.2	-	14S	114E
2930	Feb 04	17:38:57	3715	822	11503	158	T-	-p	-0.0618	2.7296	1.7592	319.5	210.2	97.3	16N	114E
2930	Jul 31	18:10:54	3719	822	11509	163	T-	pp	-0.2036	2.5183	1.4512	370.3	230.7	95.0	18S	105E
2931	Jan 25	09:05:53	3723	823	11515	168	P	a-	0.6126	1.7273	0.7404	300.0	170.3	-	20N	118W
2931	Jul 20	21:32:08	3726	824	11521	173	P	t-	-0.9536	1.1224	0.0946	281.7	72.1	-	21S	55E
2931	Dec 16	05:16:01	3729	824	11526	140	N	-a	-1.5422	0.0618	-1.0045	74.5	-	-	22N	65W
2932	Jan 14	20:37:55	3730	824	11527	178	N	a-	1.3493	0.4020	-0.6370	177.9	-	-	23N	68E
2932	Jun 10	00:03:54	3733	825	11532	145	P	-a	0.9123	1.1619	0.2057	260.4	97.2	-	22S	15E
2932	Dec 04	06:27:45	3737	826	11538	150	P	-t	-0.8968	1.2626	0.1634	311.9	97.7	-	21N	84W
2933	May 30	16:56:35	3740	826	11544	155	T+	-p	0.1801	2.5010	1.5537	315.9	208.4	92.1	22S	121E
2933	Nov 23	06:10:03	3744	827	11550	160	T-	pp	-0.1946	2.5415	1.4610	367.6	227.8	94.1	20N	81W
2934	May 20	08:33:06	3748	828	11556	165	P	a-	-0.5637	1.8143	0.8328	309.3	181.1	-	21S	113W
2934	Nov 12	11:31:54	3752	829	11562	170	P	a-	0.5240	1.9088	0.8843	326.0	189.9	-	18N	162W

2935 Apr 10	03:47:47	3755	829	11567	137	N	-t	1.4870	0.1665	-0.9066	123.5	-	-	7S	40W
2935 May 09	18:31:15	3755	829	11568	175	N	t-	-1.3637	0.3757	-0.6638	176.3	-	-	19S	97E
2935 Oct 03	15:19:34	3758	830	11573	142	N	-a	-1.3883	0.2866	-0.6657	139.6	-	-	3N	144E
2935 Nov 02	00:04:14	3759	830	11574	180	N	a-	1.1953	0.6509	-0.3213	206.6	-	-	16N	10E
2936 Mar 29	03:51:06	3762	831	11579	147	P	-t	0.8058	1.4266	0.3333	325.1	136.1	-	3S	41W
2936 Sep 22	07:59:26	3766	831	11585	152	P	-a	-0.6978	1.5576	0.5972	288.1	156.2	-	1S	105W
2937 Mar 18	05:07:29	3770	832	11591	157	T+	pp	0.0822	2.7387	1.6761	361.7	228.2	101.9	1N	59W
2937 Sep 11	21:23:13	3773	833	11597	162	T+	pp	0.0375	2.7918	1.7866	342.8	222.3	102.2	4S	54E
2938 Mar 07	13:10:59	3777	833	11603	167	P	a-	-0.6254	1.7144	0.7064	308.8	171.5	-	5N	180W
2938 Sep 01	04:00:08	3781	834	11609	172	P	t-	0.8290	1.3648	0.3094	311.5	129.4	-	7S	44W
2939 Jan 26	16:50:34	3784	835	11614	139	N	-a	1.3890	0.2946	-0.6760	141.7	-	-	20N	126E
2939 Feb 25	03:13:26	3784	835	11615	177	N	a-	-1.2696	0.5139	-0.4572	184.0	-	-	8N	30W
2939 Jul 22	14:10:48	3788	835	11620	144	N	-t	-1.2523	0.5903	-0.4693	224.2	-	-	21S	166E
2940 Jan 16	07:38:51	3791	836	11626	149	P	-a	0.7603	1.4626	0.4631	289.5	142.5	-	22N	97W
2940 Jul 10	19:19:56	3795	837	11632	154	T	-t	-0.4455	2.0469	1.0345	333.7	202.0	29.2	22S	88E
2941 Jan 04	17:20:43	3799	838	11638	159	T+	pp	0.0797	2.7397	1.6841	356.0	225.3	100.9	23N	116E
2941 Jun 30	07:38:47	3802	838	11644	164	T	a-	0.3318	2.2299	1.2680	318.2	203.7	72.4	23S	97W
2941 Dec 24	19:47:13	3806	839	11650	169	P	t-	-0.6294	1.7530	0.6543	345.7	180.4	-	23N	78E
2942 May 21	17:01:30	3809	840	11655	136	N	-a	-1.4690	0.1396	-0.8147	99.3	-	-	22S	120E
2942 Jun 20	00:18:24	3810	840	11656	174	N	a-	1.0497	0.9030	-0.0396	232.4	-	-	22S	12E
2942 Dec 13	18:56:51	3814	840	11662	179	N	t-	-1.3016	0.5170	-0.5765	213.5	-	-	22N	90E
2943 May 11	07:24:32	3817	841	11667	146	P	-a	-0.7950	1.3986	0.3999	291.2	136.5	-	19S	96W
2943 Nov 03	09:27:46	3821	842	11673	151	P	-a	0.8713	1.2621	0.2565	280.8	111.4	-	16N	130W
2944 Apr 29	15:12:10	3824	843	11679	156	T-	pp	-0.0633	2.7705	1.7137	363.5	230.1	103.5	15S	147E
2944 Oct 22	23:33:42	3828	843	11685	161	T+	-p	0.1331	2.5944	1.6329	319.5	210.2	95.2	12N	19E
2945 Apr 18	16:19:04	3832	844	11691	166	P	t-	0.6742	1.6653	0.5775	341.2	172.5	-	11S	131E
2945 Oct 12	16:05:38	3836	845	11697	171	P	a-	-0.5715	1.7886	0.8297	297.9	176.0	-	7N	131E
2946 Mar 09	01:31:25	3839	845	11702	138	N	-t	-1.5200	0.0938	-0.9552	89.9	-	-	3N	5W
2946 Apr 07	16:52:09	3839	845	11703	176	N	t-	1.3626	0.3925	-0.6760	184.6	-	-	6S	124E
2946 Sep 02	19:28:42	3842	846	11708	143	N	-h	1.3546	0.3823	-0.6371	174.6	-	-	6S	84E
2946 Oct 02	06:23:34	3843	846	11709	181	N	h-	-1.3332	0.4104	-0.5869	174.5	-	-	2N	82W
2947 Feb 26	11:30:26	3846	847	11714	148	P	-a	-0.7614	1.4585	0.4633	288.7	142.4	-	8N	154W
2947 Aug 23	00:10:06	3850	847	11720	153	P	-t	0.6385	1.7185	0.6548	339.3	179.9	-	11S	14E
2948 Feb 16	02:27:37	3854	848	11726	158	T-	-p	-0.0696	2.7146	1.7457	319.2	210.1	97.1	12N	18W
2948 Aug 11	00:41:06	3857	849	11732	163	T-	pp	-0.1176	2.6758	1.6092	371.9	233.7	102.7	15S	8E
2949 Feb 04	17:51:50	3861	850	11738	168	P	a-	0.6082	1.7362	0.7479	301.1	171.3	-	17N	111E
2949 Jul 31	04:23:37	3865	850	11744	173	P	t-	-0.8712	1.2720	0.2473	293.9	113.7	-	19S	48W
2949 Dec 26	13:26:33	3868	851	11749	140	N	-h	-1.5577	0.0356	-1.0350	56.9	-	-	22N	174E
2950 Jan 25	05:06:21	3869	851	11750	178	N	h-	1.3472	0.4072	-0.6346	179.6	-	-	20N	58W
2950 Jun 21	07:35:16	3872	852	11755	145	P	-a	0.9786	1.0388	0.0858	248.9	63.7	-	22S	97W

2950	Dec 15	14:18:05	3876	852	11761	150	P	-t	-0.9160	1.2286	0.1268	309.2	86.6	-	22N	160E
2951	Jun 11	00:37:10	3879	853	11767	155	T+	-p	0.2449	2.3814	1.4352	314.2	205.8	85.7	23S	7E
2951	Dec 04	14:01:41	3883	854	11773	160	T-	pp	-0.2180	2.4987	1.4178	366.2	226.2	91.0	22N	163E
2952	May 30	16:06:16	3887	855	11779	165	P	a-	-0.5036	1.9250	0.9428	315.0	189.6	-	22S	134E
2952	Nov 22	19:40:19	3891	855	11785	170	P	a-	0.4967	1.9588	0.9347	327.1	192.9	-	21N	77E
2953	Apr 20	11:12:23	3894	856	11790	137	N	-t	1.5342	0.0793	-0.9927	86.0	-	-	10S	151W
2953	May 20	01:45:04	3895	856	11791	175	N	t-	-1.3075	0.4790	-0.5608	197.7	-	-	21S	11W
2953	Oct 13	23:20:08	3898	857	11796	142	N	-a	-1.4332	0.2053	-0.7491	119.0	-	-	7N	23E
2953	Nov 12	08:22:34	3898	857	11797	180	N	a-	1.1628	0.7108	-0.2623	214.2	-	-	19N	114W
2954	Apr 09	11:16:49	3901	857	11802	147	P	-t	0.8446	1.3535	0.2640	318.8	122.3	-	7S	152W
2954	Oct 03	15:48:11	3905	858	11808	152	P	-a	-0.7529	1.4588	0.4939	282.9	144.6	-	4N	137E
2955	Mar 29	12:58:20	3909	859	11814	157	T+	pp	0.1108	2.6833	1.6263	359.7	227.1	100.5	3S	177W
2955	Sep 23	04:45:01	3913	860	11820	162	T-	pp	-0.0255	2.8166	1.8057	344.6	222.9	102.4	0N	57W
2956	Mar 17	21:32:57	3917	860	11826	167	P	a-	-0.6048	1.7498	0.7469	309.4	174.7	-	0N	55E
2956	Sep 11	10:48:34	3920	861	11832	172	P	t-	0.7562	1.5008	0.4409	322.7	151.7	-	3S	147W
2957	Feb 06	01:42:01	3924	862	11837	139	N	-a	1.3952	0.2832	-0.6872	139.2	-	-	17N	6W
2957	Mar 07	11:53:54	3924	862	11838	177	N	a-	-1.2549	0.5394	-0.4289	187.8	-	-	4N	160W
2957	Aug 01	20:43:46	3927	862	11843	144	N	-t	-1.3339	0.4397	-0.6183	195.8	-	-	19S	68E
2957	Aug 31	11:32:42	3928	862	11844	182	N	t-	1.5086	0.1270	-0.9463	109.9	-	-	7S	157W
2958	Jan 26	16:21:46	3931	863	11849	149	P	-a	0.7673	1.4510	0.4492	289.6	141.0	-	19N	134E
2958	Jul 22	02:19:15	3935	864	11855	154	P	-t	-0.5227	1.9033	0.8945	326.6	192.1	-	20S	16W
2959	Jan 16	01:42:14	3939	864	11861	159	T+	pp	0.0872	2.7276	1.6687	357.2	225.7	100.7	21N	7W
2959	Jul 11	15:02:50	3943	865	11867	164	T+	p-	0.2580	2.3638	1.4049	320.1	208.0	84.7	22S	153E
2960	Jan 05	03:46:45	3946	866	11873	169	P	t-	-0.6174	1.7761	0.6751	347.6	182.8	-	22N	40W
2960	Jun 01	00:45:23	3950	867	11878	136	Ne	-a	-1.5289	0.0293	-0.9243	46.0	-	-	24S	5E
2960	Jun 30	07:52:11	3950	867	11879	174	P	a-	0.9811	1.0284	0.0868	244.7	63.4	-	22S	100W
2960	Dec 24	02:55:31	3954	867	11885	179	N	t-	-1.2853	0.5470	-0.5467	218.7	-	-	22N	28W
2961	May 21	14:56:50	3957	868	11890	146	P	-a	-0.8552	1.2884	0.2892	284.0	118.4	-	21S	152E
2961	Nov 13	17:35:18	3961	869	11896	151	P	-a	0.8984	1.2124	0.2069	275.9	100.5	-	19N	108E
2962	May 10	22:26:21	3965	869	11902	156	T-	pp	-0.1204	2.6655	1.6090	363.6	229.5	101.1	18S	39E
2962	Nov 03	07:47:39	3969	870	11908	161	T+	-p	0.1684	2.5304	1.5674	318.5	208.8	92.5	15N	105W
2963	Apr 29	23:27:31	3972	871	11914	166	P	t-	0.6217	1.7600	0.6752	346.5	183.6	-	14S	24E
2963	Oct 24	00:10:46	3976	872	11920	171	P	a-	-0.5305	1.8659	0.9028	301.9	181.5	-	11N	10E
2964	Mar 19	09:35:27	3979	872	11925	138	N	-t	-1.5368	0.0602	-0.9832	71.9	-	-	1S	126W
2964	Apr 18	00:21:50	3980	872	11926	176	N	t-	1.3188	0.4698	-0.5930	199.7	-	-	10S	11E
2964	Sep 13	02:37:03	3983	873	11931	143	N	-h	1.4254	0.2552	-0.7697	145.0	-	-	2S	24W
2964	Oct 12	14:03:40	3984	873	11932	181	N	h-	-1.2881	0.4961	-0.5071	191.2	-	-	7N	163E
2965	Mar 08	20:02:04	3987	874	11937	148	P	-a	-0.7739	1.4333	0.4426	286.1	139.3	-	4N	78E
2965	Sep 02	06:49:37	3991	874	11943	153	P	-t	0.7178	1.5749	0.5075	331.3	162.5	-	7S	86W
2966	Feb 26	11:12:49	3995	875	11949	158	T-	-p	-0.0800	2.6946	1.7273	318.9	209.9	96.8	9N	149W

2966	Aug 22	07:15:06	3999	876	11955	163	T-	pp	-0.0345	2.8283	1.7617	372.4	234.9	105.9	11S	91W
2967	Feb 16	02:35:51	4002	877	11961	168	P	a-	0.6029	1.7463	0.7570	302.3	172.4	-	13N	19W
2967	Aug 11	11:18:00	4006	877	11967	173	P	h-	-0.7900	1.4197	0.3975	304.1	140.6	-	16S	151W
2968	Jan 06	21:39:57	4009	878	11972	140	N	-h	-1.5700	0.0147	-1.0595	36.8	-	-	21N	53E
2968	Feb 05	13:34:02	4010	878	11973	178	N	h-	1.3453	0.4120	-0.6323	181.1	-	-	17N	176E
2968	Jul 01	15:04:40	4013	879	11978	145	N	-a	1.0466	0.9125	-0.0375	235.9	-	-	22S	152E
2968	Jul 30	22:36:36	4014	879	11979	183	Nb	a-	-1.4880	0.1116	-0.8565	91.2	-	-	19S	40E
2968	Dec 25	22:13:31	4017	879	11984	150	P	-t	-0.9310	1.2022	0.0982	307.0	76.6	-	22N	43E
2969	Jun 21	08:12:21	4021	880	11990	155	T	-p	0.3140	2.2543	1.3087	311.9	202.0	75.6	23S	105W
2969	Dec 14	22:00:45	4025	881	11996	160	T-	pp	-0.2359	2.4660	1.3851	364.8	224.7	88.3	23N	45E
2970	Jun 10	23:33:26	4029	882	12002	165	T	a-	-0.4392	2.0437	1.0604	320.5	197.4	37.3	23S	24E
2970	Dec 04	03:55:36	4032	882	12008	170	P	a-	0.4745	1.9992	0.9758	327.6	195.1	-	23N	45W
2971	May 31	08:52:22	4036	883	12014	175	N	t-	-1.2467	0.5909	-0.4495	217.9	-	-	23S	117W
2971	Oct 25	07:28:18	4040	884	12019	142	N	-a	-1.4720	0.1353	-0.8213	97.2	-	-	11N	99W
2971	Nov 23	16:47:59	4040	884	12020	180	N	a-	1.1363	0.7599	-0.2140	220.0	-	-	21N	121E
2972	Apr 19	18:34:27	4043	884	12025	147	P	-t	0.8901	1.2680	0.1825	310.9	102.9	-	11S	98E
2972	Oct 13	23:42:42	4047	885	12031	152	P	-a	-0.8028	1.3697	0.4001	277.9	132.2	-	8N	18E
2973	Apr 08	20:41:43	4051	886	12037	157	T+	pp	0.1464	2.6150	1.5640	357.4	225.6	98.1	8S	67E
2973	Oct 03	12:12:50	4055	887	12043	162	T-	pp	-0.0830	2.7142	1.6973	345.9	222.7	101.0	4N	169W
2974	Mar 29	05:46:39	4059	887	12049	167	P	a-	-0.5765	1.7989	0.8014	310.5	178.9	-	4S	69W
2974	Sep 22	17:44:08	4063	888	12055	172	P	t-	0.6893	1.6259	0.5611	332.1	168.2	-	1N	109E
2975	Feb 17	10:30:00	4066	889	12060	139	N	-a	1.4046	0.2655	-0.7042	135.0	-	-	13N	137W
2975	Mar 18	20:27:43	4067	889	12061	177	N	a-	-1.2346	0.5752	-0.3901	193.0	-	-	0S	71E
2975	Aug 13	03:19:38	4070	889	12066	144	N	-t	-1.4132	0.2935	-0.7631	161.8	-	-	16S	31W
2975	Sep 11	18:13:04	4070	890	12067	182	N	t-	1.4331	0.2663	-0.8085	157.1	-	-	3S	103E
2976	Feb 07	01:02:57	4074	890	12072	149	P	-a	0.7755	1.4369	0.4332	289.5	139.1	-	16N	5E
2976	Aug 01	09:19:36	4078	891	12078	154	P	-t	-0.6001	1.7597	0.7541	318.5	180.1	-	18S	121W
2977	Jan 26	10:04:08	4081	892	12084	159	T+	pp	0.0937	2.7171	1.6555	358.4	226.1	100.6	19N	131W
2977	Jul 21	22:24:42	4085	892	12090	164	T+	p-	0.1817	2.5026	1.5462	321.4	211.1	92.9	20S	43E
2978	Jan 15	11:49:55	4089	893	12096	169	P	t-	-0.6085	1.7931	0.6906	349.0	184.6	-	20N	159W
2978	Jul 11	15:22:58	4093	894	12102	174	P	a-	0.9099	1.1588	0.2175	256.1	98.7	-	21S	148E
2979	Jan 04	10:59:01	4097	895	12108	179	N	t-	-1.2722	0.5707	-0.5225	222.5	-	-	21N	147W
2979	Jun 01	22:22:29	4100	895	12113	146	P	-a	-0.9201	1.1698	0.1695	275.1	92.5	-	23S	41E
2979	Nov 25	01:51:10	4104	896	12119	151	P	-a	0.9196	1.1733	0.1680	271.8	90.8	-	21N	14W
2980	May 21	05:32:32	4108	897	12125	156	T-	pp	-0.1834	2.5498	1.4935	363.1	227.8	96.1	21S	66W
2980	Nov 13	16:08:36	4112	897	12131	161	T+	-p	0.1981	2.4767	1.5120	317.6	207.4	89.8	18N	131E
2981	May 10	06:28:32	4116	898	12137	166	P	t-	0.5629	1.8662	0.7847	351.7	194.2	-	17S	81W
2981	Nov 03	08:22:37	4120	899	12143	171	P	a-	-0.4957	1.9319	0.9647	305.3	185.8	-	15N	113W
2982	Mar 30	17:33:12	4123	900	12148	138	Ne	-t	-1.5590	0.0164	-1.0211	37.5	-	-	5S	114E
2982	Apr 29	07:44:33	4123	900	12149	176	N	t-	1.2686	0.5590	-0.4980	215.2	-	-	13S	99W

2982 Sep 24	09:51:30	4127	900	12154	143	N	-h	1.4900	0.1395	-0.8912	108.8	-	-	2N	133W
2982 Oct 23	21:51:15	4127	900	12155	181	N	h-	-1.2497	0.5697	-0.4395	204.3	-	-	11N	46E
2983 Mar 20	04:28:26	4131	901	12160	148	P	-a	-0.7911	1.3994	0.4133	282.8	134.9	-	1S	48W
2983 Sep 13	13:33:57	4134	902	12166	153	P	-t	0.7925	1.4398	0.3687	322.6	141.7	-	3S	173E
2984 Mar 08	19:52:50	4138	903	12172	158	T-	-p	-0.0949	2.6663	1.7011	318.5	209.7	96.3	4N	81E
2984 Sep 01	13:54:17	4142	903	12178	163	T+	pp	0.0447	2.8097	1.7428	371.8	234.5	105.6	8S	169E
2985 Feb 26	11:14:21	4146	904	12184	168	P	a-	0.5935	1.7639	0.7741	303.9	174.2	-	9N	148W
2985 Aug 21	18:16:51	4150	905	12190	173	P	h-	-0.7113	1.5630	0.5429	312.5	160.1	-	12S	104E
2986 Feb 15	21:57:12	4154	905	12196	178	N	h-	1.3404	0.4217	-0.6243	183.7	-	-	14N	51E
2986 Jul 12	22:32:20	4157	906	12201	145	N	-a	1.1163	0.7835	-0.1644	221.0	-	-	20S	41E
2986 Aug 11	05:58:00	4158	906	12202	183	N	a-	-1.4132	0.2479	-0.7182	133.8	-	-	16S	70W
2987 Jan 06	06:11:40	4161	907	12207	150	P	-t	-0.9435	1.1798	0.0746	305.0	67.0	-	22N	75W
2987 Jul 02	15:44:06	4165	908	12213	155	T	-a	0.3857	2.1228	1.1771	308.8	196.8	59.8	22S	143E
2987 Dec 26	06:06:29	4169	908	12219	160	T-	pp	-0.2485	2.4424	1.3622	363.5	223.5	86.3	23N	75W
2988 Jun 21	06:52:46	4173	909	12225	165	T	p-	-0.3690	2.1732	1.1884	325.7	204.5	63.4	24S	85W
2988 Dec 14	12:19:06	4177	910	12231	170	T	a-	0.4584	2.0283	1.0058	327.7	196.4	11.8	24N	169W
2989 Jun 10	15:50:06	4181	911	12237	175	N	t-	-1.1789	0.7157	-0.3256	237.7	-	-	24S	140E
2989 Nov 04	15:44:24	4184	911	12242	142	N	-a	-1.5049	0.0761	-0.8829	73.3	-	-	14N	138E
2989 Dec 04	01:21:13	4185	911	12243	180	N	a-	1.1157	0.7980	-0.1766	224.3	-	-	23N	6W
2990 May 01	01:43:15	4188	912	12248	147	P	-t	0.9428	1.1691	0.0879	301.2	72.3	-	14S	9W
2990 Oct 25	07:44:36	4192	913	12254	152	P	-a	-0.8461	1.2926	0.3181	273.3	119.6	-	11N	102W
2991 Apr 20	04:19:40	4196	913	12260	157	T+	pp	0.1873	2.5369	1.4920	354.7	223.6	94.5	11S	48W
2991 Oct 14	19:45:04	4200	914	12266	162	T-	pp	-0.1359	2.6203	1.5972	346.9	222.0	98.1	8N	78E
2992 Apr 08	13:56:05	4204	915	12272	167	P	a-	-0.5441	1.8556	0.8636	311.8	183.3	-	8S	169E
2992 Oct 03	00:44:07	4208	916	12278	172	P	t-	0.6263	1.7439	0.6742	340.2	181.4	-	5N	4E
2993 Feb 27	19:14:38	4211	916	12283	139	N	-a	1.4167	0.2429	-0.7259	129.5	-	-	9N	92E
2993 Mar 29	04:55:38	4211	916	12284	177	N	a-	-1.2097	0.6193	-0.3428	199.1	-	-	5S	56W
2993 Aug 23	09:59:34	4215	917	12289	144	N	-t	-1.4894	0.1534	-0.9023	118.2	-	-	12S	131W
2993 Sep 22	01:00:12	4215	917	12290	182	N	t-	1.3622	0.3972	-0.6793	189.5	-	-	1N	0E
2994 Feb 17	09:40:56	4219	918	12295	149	P	-a	0.7858	1.4187	0.4136	289.1	136.7	-	13N	124W
2994 Aug 12	16:24:41	4223	918	12301	154	P	-t	-0.6742	1.6224	0.6195	309.8	166.4	-	15S	133E
2995 Feb 06	18:22:21	4227	919	12307	159	T+	pp	0.1026	2.7019	1.6381	359.5	226.4	100.3	16N	105E
2995 Aug 02	05:49:56	4231	920	12313	164	T+	pp	0.1076	2.6376	1.6831	322.0	212.9	97.7	17S	68W
2996 Jan 26	19:52:18	4234	921	12319	169	P	t-	-0.5990	1.8111	0.7077	350.3	186.4	-	18N	82E
2996 Jul 21	22:52:23	4238	921	12325	174	P	a-	0.8376	1.2917	0.3501	266.5	122.9	-	19S	36E
2997 Jan 14	19:05:29	4242	922	12331	179	N	t-	-1.2609	0.5909	-0.5011	225.5	-	-	20N	93E
2997 Jun 12	05:40:01	4246	923	12336	146	P	-a	-0.9911	1.0404	0.0387	264.1	45.2	-	24S	67W
2997 Dec 05	10:15:02	4250	924	12342	151	P	-a	0.9349	1.1449	0.1402	268.6	83.0	-	23N	139W
2998 Jun 01	12:29:03	4254	924	12348	156	T-	-p	-0.2537	2.4208	1.3645	361.6	224.7	87.2	22S	170W
2998 Nov 25	00:38:07	4258	925	12354	161	T+	-p	0.2211	2.4353	1.4691	316.8	206.2	87.3	21N	5E

2999 May 21	13:21:07	4261	926	12360	166	P	t-	0.4971	1.9854	0.9071	356.8	204.2	-	20S	177E
2999 Nov 14	16:41:21	4265	927	12366	171	T	a-	-0.4669	1.9870	1.0155	308.1	189.1	18.6	18N	123E
3000 May 10	15:00:16	4273	927	12372	176	N	t-	1.2117	0.6604	-0.3907	230.6	-	-	17S	152E
3000 Oct 05	17:10:38	4276	928	12377	143	Ne	-h	1.5497	0.0329	-1.0039	53.5	-	-	6N	117E
3000 Nov 04	05:45:18	4277	928	12378	181	N	h-	-1.2170	0.6326	-0.3828	214.8	-	-	14N	72W

4TH MILLENNIUM CE

In the 4th millennium CE the total number of lunar eclipses will be --- lunar eclipses: --- penumbral lunar eclipses, --- partial lunar eclipses, --- total lunar eclipses (--- central total lunar eclipses, --- non-central total lunar eclipses).

31ST CENTURY CE

In the 31st century CE the total number of lunar eclipses will be --- lunar eclipses: --- penumbral lunar eclipses, --- partial lunar eclipses, --- total lunar eclipses (--- central total lunar eclipses, --- non-central total lunar eclipses).

PHASE														
DURATIONS														
SEQ.	REL.	CALENDAR	TD	ΔT	LUNA	ECL.	QSE	GAMMA	PEN.	UM.	PEN.	PAR.	TOTAL	
NUM.	NUM.	DATE	OF	s	NUM	TYPE			MAG.	MAG.	m	m	m	

GREATEST

ECLIPSE

58	24	3001	Mar 31	12:47:55	4431	12383	P	-a	-0.8146	1.3538	0.3725	278.6	128.6	-
49	11	3001	Sep 24	20:23:38	4435	12389	P	-t	0.8622	1.3139	0.2387	313.3	116.4	-
48	11	3002	Mar 21	04:27:30	4438	12395	T-	-p	-0.1143	2.6296	1.6666	318.0	209.4	95.6
36	02	3002	Sep 13	20:39:57	4442	12401	T+	pp	0.1191	2.6733	1.6059	370.3	232.6	102.1
26	-12	3003	Mar 10	19:48:07	4446	12407	P	a-	0.5806	1.7876	0.7975	305.6	176.5	-
13	-22	3003	Sep 03	01:21:39	4449	12413	P	h-	-0.6364	1.6995	0.6811	319.2	174.7	-
14	-22	3004	Feb 28	06:16:54	4453	12419	N	h-	1.3335	0.4349	-0.6124	186.9	-	-
66	32	3004	Jul 24	05:59:11	4456	12424	N	-a	1.1868	0.6531	-0.2931	204.0	-	-
56	18	3005	Jan 17	14:13:07	4460	12430	P	-t	-0.9532	1.1624	0.0565	303.3	58.4	-
45	07	3005	Jul 13	23:13:22	4463	12436	T	-a	0.4589	1.9888	1.0424	304.8	190.2	30.5
43	09	3006	Jan 06	14:16:17	4467	12442	T-	-p	-0.2584	2.4237	1.3447	362.1	222.4	84.6
34	-04	3006	Jul 03	14:08:38	4471	12448	T	p-	-0.2967	2.3068	1.3200	330.3	210.5	79.2
20	-16	3006	Dec 26	20:47:49	4474	12454	T	a-	0.4463	2.0497	1.0285	327.3	197.2	26.0
13	-24	3007	Jun 22	22:43:09	4478	12460	N	t-	-1.1076	0.8471	-0.1955	255.9	-	-
73	39	3007	Nov 17	00:06:57	4481	12465	N	-a	-1.5328	0.0260	-0.9354	43.0	-	-
11	-26	3007	Dec 16	09:59:24	4482	12466	N	a-	1.0991	0.8285	-0.1465	227.4	-	-
63	26	3008	May 12	08:44:58	4485	12471	Nx	-t	1.0011	1.0598	-0.0173	289.4	-	-
51	14	3008	Nov 05	15:53:13	4488	12477	P	-a	-0.8834	1.2266	0.2470	269.0	106.7	-
40	10	3009	May 01	11:48:35	4492	12483	T+	pp	0.2363	2.4439	1.4052	351.3	220.7	88.7
41	03	3009	Oct 26	03:25:16	4496	12489	T-	-p	-0.1813	2.5400	1.5107	347.5	220.8	94.4
27	-08	3010	Apr 20	21:57:04	4499	12495	P	a-	-0.5043	1.9258	0.9394	313.3	188.1	-
15	-20	3010	Oct 15	07:52:30	4503	12501	P	t-	0.5707	1.8485	0.7737	346.7	191.3	-
76	43	3011	Mar 12	03:52:57	4506	12506	N	-a	1.4339	0.2105	-0.7571	120.9	-	-
18	-21	3011	Apr 10	13:15:44	4507	12507	N	a-	-1.1785	0.6747	-0.2842	206.4	-	-
71	33	3011	Sep 04	16:45:53	4510	12512	Ne	-t	-1.5605	0.0224	-1.0328	45.5	-	-

58	22	3012	Feb 29	18:14:35	4514	12518	P	-a	0.7993	1.3944	0.3883	288.2	133.3	-
44	10	3012	Aug 23	23:32:38	4517	12524	P	-t	-0.7467	1.4883	0.4874	300.3	150.2	-
49	09	3013	Feb 18	02:38:44	4521	12530	T+	pp	0.1125	2.6845	1.6193	360.3	226.7	99.9
35	00	3013	Aug 13	13:16:15	4525	12536	T+	pp	0.0336	2.7727	1.8193	321.9	213.6	99.8
22	-13	3014	Feb 07	03:54:01	4528	12542	P	t-	-0.5890	1.8293	0.7259	351.4	188.3	-
22	-25	3014	Aug 03	06:21:54	4532	12548	P	a-	0.7653	1.4248	0.4822	275.8	141.5	-
12	-23	3015	Jan 27	03:14:44	4536	12554	N	t-	-1.2509	0.6080	-0.4821	227.8	-	-
66	29	3015	Jun 24	12:52:15	4539	12559	N	-a	-1.0651	0.9053	-0.0982	250.8	-	-
52	17	3015	Dec 17	18:45:11	4542	12565	P	-a	0.9458	1.1246	0.1206	265.9	77.0	-
54	05	3016	Jun 12	19:19:17	4546	12571	T	-t	-0.3285	2.2837	1.2271	359.1	219.8	72.6
43	07	3016	Dec 06	09:13:42	4550	12577	T+	-p	0.2390	2.4031	1.4355	316.0	205.1	85.1
30	-05	3017	Jun 01	20:06:36	4554	12583	T	t-	0.4253	2.1156	1.0403	361.4	213.2	32.9
20	-18	3017	Nov 26	01:06:47	4557	12589	T	p-	-0.4440	2.0309	1.0552	310.3	191.6	34.7
16	-18	3018	May 21	22:10:31	4561	12595	N	t-	1.1493	0.7719	-0.2736	245.5	-	-
59	25	3019	Apr 11	21:01:06	4568	12606	P	-a	-0.8438	1.2977	0.3213	273.7	120.1	-
50	12	3019	Oct 06	03:20:34	4572	12612	P	-t	0.9255	1.1997	0.1204	303.8	84.2	-
49	12	3020	Mar 31	12:55:02	4575	12618	T-	-p	-0.1396	2.5821	1.6214	317.4	208.9	94.3
37	03	3020	Sep 24	03:32:39	4579	12624	T+	pp	0.1882	2.5471	1.4789	368.1	229.6	95.9
27	-11	3021	Mar 21	04:14:20	4583	12630	P	a-	0.5622	1.8214	0.8313	307.9	179.6	-
14	-21	3021	Sep 13	08:33:59	4586	12636	P	a-	-0.5669	1.8263	0.8092	324.5	185.8	-
15	-21	3022	Mar 10	14:28:10	4590	12642	N	h-	1.3208	0.4587	-0.5895	192.0	-	-
67	33	3022	Aug 04	13:27:37	4593	12647	N	-a	1.2562	0.5254	-0.4200	185.0	-	-
57	19	3023	Jan 28	22:14:41	4597	12653	P	-t	-0.9622	1.1457	0.0401	301.6	49.3	-
46	08	3023	Jul 25	06:40:39	4601	12659	P	-a	0.5335	1.8525	0.9049	300.1	181.9	-
44	10	3024	Jan 17	22:29:43	4604	12665	T-	-p	-0.2657	2.4093	1.3322	360.7	221.5	83.3
35	-03	3024	Jul 13	21:19:17	4608	12671	T-	pp	-0.2211	2.4470	1.4575	334.4	215.4	90.3
21	-15	3025	Jan 06	05:22:02	4612	12677	T	a-	0.4379	2.0642	1.0447	326.7	197.6	32.3
14	-23	3025	Jul 03	05:28:23	4616	12683	N	t-	-1.0305	0.9894	-0.0548	273.4	-	-

12	-25	3025	Dec 26	18:43:57	4619	12689	N	a-	1.0876	0.8498	-0.1255	229.5	-	-
64	27	3026	May 23	15:39:32	4622	12694	N	-t	1.0652	0.9401	-0.1328	275.4	-	-
52	15	3026	Nov 17	00:08:20	4626	12700	P	-a	-0.9149	1.1713	0.1869	265.4	93.8	-
41	11	3027	May 12	19:13:06	4630	12706	T	-p	0.2897	2.3429	1.3102	347.5	217.0	80.3
42	04	3027	Nov 06	11:11:30	4634	12712	T-	-p	-0.2208	2.4708	1.4352	348.1	219.5	90.0
28	-07	3028	May 01	05:52:42	4637	12718	T	a-	-0.4592	2.0057	1.0248	315.1	193.0	23.8
16	-19	3028	Oct 25	15:06:58	4641	12724	P	t-	0.5203	1.9435	0.8638	352.2	199.2	-
77	44	3029	Mar 22	12:26:16	4644	12729	N	-a	1.4553	0.1706	-0.7956	109.3	-	-
19	-20	3029	Apr 20	21:29:36	4645	12730	N	a-	-1.1423	0.7396	-0.2162	214.4	-	-
59	23	3030	Mar 12	02:41:30	4652	12741	P	-a	0.8179	1.3606	0.3538	286.6	128.2	-
45	11	3030	Sep 04	06:48:19	4655	12747	P	-h	-0.8138	1.3643	0.3651	290.6	132.0	-
50	10	3031	Mar 01	10:48:54	4659	12753	T+	pp	0.1271	2.6581	1.5919	361.1	226.8	99.2
36	01	3031	Aug 24	20:46:39	4663	12759	T-	pp	-0.0374	2.7655	1.8129	321.2	213.2	99.6
23	-12	3032	Feb 18	11:52:02	4667	12765	P	t-	-0.5760	1.8529	0.7502	352.8	190.8	-
23	-24	3032	Aug 13	13:52:30	4670	12771	P	a-	0.6938	1.5567	0.6125	284.1	156.4	-
13	-22	3033	Feb 06	11:22:29	4674	12777	N	t-	-1.2394	0.6279	-0.4595	230.5	-	-
67	30	3033	Jul 04	19:57:36	4677	12782	N	-h	-1.1438	0.7620	-0.2438	234.4	-	-
53	18	3033	Dec 28	03:21:05	4681	12788	P	-a	0.9528	1.1111	0.1083	264.0	72.9	-
55	06	3034	Jun 24	02:02:31	4685	12794	T	-t	-0.4084	2.1374	1.0801	355.5	212.8	45.4
44	08	3034	Dec 17	17:54:52	4689	12800	T+	-p	0.2526	2.3787	1.4099	315.4	204.2	83.3
31	-04	3035	Jun 13	02:46:10	4692	12806	T	t-	0.3480	2.2559	1.1834	365.5	220.9	67.0
21	-17	3035	Dec 07	09:38:44	4696	12812	T	p-	-0.4267	2.0647	1.0851	312.3	193.5	42.8
60	26	3037	Apr 22	05:07:11	4707	12829	P	-a	-0.8796	1.2296	0.2582	267.6	108.4	-
51	13	3037	Oct 16	10:25:20	4710	12835	P	-t	0.9820	1.0981	0.0148	294.5	29.9	-
50	13	3038	Apr 11	21:15:18	4714	12841	T-	-p	-0.1709	2.5233	1.5649	316.6	208.0	92.2
38	04	3038	Oct 05	10:34:33	4718	12847	T+	pp	0.2502	2.4336	1.3645	365.5	225.9	87.5
28	-10	3039	Apr 01	12:34:28	4722	12853	P	a-	0.5393	1.8633	0.8733	310.5	183.2	-
15	-20	3039	Sep 24	15:52:39	4726	12859	P	a-	-0.5016	1.9457	0.9295	328.6	194.3	-

16	-20	3040	Mar 20	22:34:00	4729	12865	N	t-	1.3043	0.4891	-0.5594	198.3	-	-
68	34	3040	Aug 14	20:57:38	4732	12870	N	-a	1.3243	0.4001	-0.5449	163.2	-	-
58	20	3041	Feb 08	06:15:20	4736	12876	P	-t	-0.9723	1.1267	0.0220	299.6	36.6	-
47	09	3041	Aug 04	14:07:39	4740	12882	P	-a	0.6081	1.7167	0.7672	294.7	171.7	-
45	11	3042	Jan 28	06:44:20	4744	12888	T	-p	-0.2728	2.3950	1.3205	359.3	220.6	82.0
36	-02	3042	Jul 25	04:29:03	4748	12894	T-	pp	-0.1452	2.5878	1.5952	337.8	219.0	97.4
22	-14	3043	Jan 17	13:57:30	4751	12900	T	a-	0.4301	2.0774	1.0603	326.1	197.9	37.2
15	-22	3043	Jul 14	12:11:50	4755	12906	P	t-	-0.9522	1.1340	0.0877	289.1	70.7	-
13	-24	3044	Jan 07	03:31:24	4759	12912	N	a-	1.0785	0.8664	-0.1087	231.1	-	-
65	28	3044	Jun 02	22:27:13	4762	12917	N	-t	1.1350	0.8101	-0.2588	258.4	-	-
53	16	3044	Nov 27	08:30:19	4766	12923	P	-a	-0.9404	1.1270	0.1377	262.4	81.2	-
42	12	3045	May 23	02:30:11	4770	12929	T	-p	0.3497	2.2297	1.2030	342.9	211.9	67.3
43	05	3045	Nov 16	19:05:41	4773	12935	T-	-p	-0.2531	2.4144	1.3729	348.6	218.2	85.5
29	-06	3046	May 12	13:40:15	4777	12941	T	a-	-0.4069	2.0991	1.1234	317.0	197.9	51.6
17	-18	3046	Nov 05	22:31:16	4781	12947	P	t-	0.4782	2.0231	0.9387	356.6	205.1	-
78	45	3047	Apr 02	20:52:10	4784	12952	N	-a	1.4828	0.1193	-0.8454	91.9	-	-
20	-19	3047	May 02	05:35:38	4785	12953	N	a-	-1.0996	0.8165	-0.1364	223.3	-	-
60	24	3048	Mar 22	11:01:59	4792	12964	P	-a	0.8414	1.3176	0.3105	284.3	121.2	-
46	12	3048	Sep 14	14:09:11	4796	12970	P	-h	-0.8775	1.2469	0.2488	280.6	110.5	-
51	11	3049	Mar 11	18:52:54	4799	12976	T+	pp	0.1461	2.6235	1.5569	361.7	226.8	98.0
37	02	3049	Sep 04	04:20:42	4803	12982	T-	pp	-0.1057	2.6401	1.6875	320.0	211.8	97.3
24	-11	3050	Feb 28	19:46:36	4807	12988	P	t-	-0.5602	1.8812	0.7798	354.2	193.6	-
24	-23	3050	Aug 24	21:25:09	4811	12994	P	a-	0.6243	1.6853	0.7390	291.4	168.4	-
14	-21	3051	Feb 17	19:29:07	4815	13000	N	h-	-1.2263	0.6502	-0.4338	233.4	-	-
68	31	3051	Jul 16	03:00:27	4818	13005	N	-h	-1.2235	0.6172	-0.3914	214.9	-	-
54	19	3052	Jan 08	12:01:20	4822	13011	P	-a	0.9570	1.1026	0.1012	262.5	70.4	-
56	07	3052	Jul 04	08:40:31	4825	13017	P	-t	-0.4919	1.9847	0.9264	350.5	203.3	-
45	09	3052	Dec 28	02:40:57	4829	13023	T+	-p	0.2625	2.3611	1.3914	315.0	203.5	81.9

32	-03	3053	Jun 23	09:21:35	4833	13029	T+	pp	0.2669	2.4035	1.3336	368.7	227.1	85.6
22	-16	3053	Dec 17	18:15:16	4837	13035	T	p-	-0.4136	2.0907	1.1074	314.0	194.9	47.8
61	27	3055	May 03	13:07:16	4848	13052	P	-a	-0.9207	1.1517	0.1850	260.4	92.6	-
52	14	3055	Oct 27	17:37:19	4852	13058	Nx	-t	1.0322	1.0080	-0.0794	285.3	-	-
51	14	3056	Apr 22	05:28:11	4855	13064	T-	-p	-0.2085	2.4532	1.4971	315.7	206.8	89.0
39	05	3056	Oct 15	17:45:35	4859	13070	T	pp	0.3053	2.3332	1.2631	362.6	221.6	77.1
29	-09	3057	Apr 11	20:44:19	4863	13076	P	a-	0.5085	1.9197	0.9299	313.6	187.6	-
16	-19	3057	Oct 04	23:21:22	4867	13082	T	a-	-0.4437	2.0517	1.0360	331.5	200.5	29.5
17	-19	3058	Apr 01	06:29:43	4871	13088	N	t-	1.2804	0.5330	-0.5157	206.8	-	-
69	35	3058	Aug 26	04:31:35	4874	13093	N	-a	1.3896	0.2804	-0.6648	138.1	-	-
59	21	3059	Feb 19	14:12:24	4878	13099	Nx	-t	-0.9852	1.1022	-0.0007	296.9	-	-
48	10	3059	Aug 15	21:35:48	4882	13105	P	-a	0.6812	1.5839	0.6318	288.4	159.5	-
46	12	3060	Feb 08	14:59:46	4885	13111	T	-p	-0.2797	2.3807	1.3094	357.8	219.7	80.8
37	-01	3060	Aug 04	11:35:19	4889	13117	T-	pp	-0.0674	2.7325	1.7361	340.5	221.5	101.5
23	-13	3061	Jan 27	22:36:14	4893	13123	T	a-	0.4244	2.0865	1.0722	325.3	198.1	40.5
16	-21	3061	Jul 24	18:51:12	4897	13129	P	t-	-0.8714	1.2836	0.2348	303.6	113.6	-
14	-23	3062	Jan 17	12:21:56	4901	13135	N	a-	1.0719	0.8782	-0.0963	232.1	-	-
66	29	3062	Jun 14	05:10:19	4904	13140	N	-t	1.2083	0.6737	-0.3914	238.3	-	-
54	17	3062	Dec 08	16:58:44	4908	13146	P	-a	-0.9599	1.0936	0.0997	260.3	69.6	-
43	13	3063	Jun 03	09:43:41	4912	13152	T	-t	0.4137	2.1094	1.0885	337.6	205.6	46.0
44	06	3063	Nov 28	03:05:01	4915	13158	T	-p	-0.2804	2.3673	1.3199	349.2	216.9	80.9
30	-05	3064	May 22	21:23:32	4919	13164	T	a-	-0.3502	2.2005	1.2298	318.7	202.4	67.9
18	-17	3064	Nov 16	06:02:14	4923	13170	T	t-	0.4416	2.0925	1.0035	360.3	209.8	9.7
79	46	3065	Apr 13	05:10:23	4926	13175	N	-a	1.5164	0.0568	-0.9063	63.9	-	-
21	-18	3065	May 12	13:34:24	4927	13176	N	a-	-1.0509	0.9045	-0.0456	232.8	-	-
61	25	3066	Apr 02	19:14:15	4934	13187	P	-a	0.8711	1.2633	0.2559	280.9	111.2	-
47	13	3066	Sep 25	21:38:35	4938	13193	P	-a	-0.9348	1.1413	0.1441	270.6	85.0	-
52	12	3067	Mar 23	02:48:28	4942	13199	T+	-p	0.1714	2.5770	1.5103	362.0	226.4	96.1

38	03	3067	Sep 15	12:01:09	4946	13205	T-	-p	-0.1690	2.5241	1.5711	318.3	209.7	93.2
25	-10	3068	Mar 11	03:34:17	4950	13211	P	t-	-0.5387	1.9197	0.8203	356.0	197.2	-
25	-22	3068	Sep 04	05:00:45	4953	13217	P	a-	0.5574	1.8095	0.8604	297.7	178.2	-
15	-20	3069	Feb 28	03:31:54	4957	13223	N	h-	-1.2092	0.6795	-0.4005	237.2	-	-
69	32	3069	Jul 26	09:59:54	4960	13228	N	-h	-1.3051	0.4692	-0.5428	190.8	-	-
55	20	3070	Jan 18	20:43:31	4964	13234	P	-a	0.9606	1.0951	0.0957	261.0	68.3	-
57	08	3070	Jul 15	15:15:00	4968	13240	P	-t	-0.5778	1.8278	0.7682	344.1	190.8	-
46	10	3071	Jan 08	11:30:55	4972	13246	T+	-p	0.2696	2.3482	1.3779	314.7	203.0	80.8
33	-02	3071	Jul 04	15:52:57	4976	13252	T+	pp	0.1819	2.5583	1.4906	370.9	231.6	97.4
23	-15	3071	Dec 29	02:56:36	4980	13258	T	p-	-0.4046	2.1088	1.1220	315.4	196.0	50.8
62	28	3073	May 13	20:59:30	4991	13275	P	-a	-0.9688	1.0612	0.0991	251.7	68.5	-
53	15	3073	Nov 07	00:58:40	4995	13281	N	-t	1.0746	0.9322	-0.1591	277.0	-	-
52	15	3074	May 03	13:34:09	4999	13287	T-	-p	-0.2519	2.3726	1.4186	314.3	204.9	84.3
40	06	3074	Oct 27	01:05:39	5002	13293	T	-p	0.3535	2.2451	1.1740	359.5	217.2	64.5
30	-08	3075	Apr 23	04:47:33	5006	13299	P	a-	0.4728	1.9853	0.9956	317.0	192.4	-
17	-18	3075	Oct 16	06:58:07	5010	13305	T	a-	-0.3914	2.1474	1.1322	333.6	205.1	54.8
18	-18	3076	Apr 11	14:17:44	5014	13311	N	t-	1.2509	0.5872	-0.4615	216.5	-	-
70	36	3076	Sep 05	12:08:52	5017	13316	N	-a	1.4523	0.1659	-0.7802	107.2	-	-
60	22	3077	Mar 01	22:06:23	5021	13322	Nx	-t	-1.0006	1.0727	-0.0279	293.4	-	-
49	11	3077	Aug 26	05:06:33	5025	13328	P	-a	0.7515	1.4564	0.5012	281.6	145.3	-
47	13	3078	Feb 18	23:12:07	5029	13334	T	-p	-0.2897	2.3603	1.2930	356.0	218.6	79.0
38	00	3078	Aug 15	18:43:42	5033	13340	T+	pp	0.0078	2.8439	1.8433	342.4	222.6	102.8
24	-12	3079	Feb 08	07:13:53	5037	13346	T	a-	0.4175	2.0974	1.0865	324.5	198.4	44.0
17	-20	3079	Aug 05	01:30:03	5041	13352	P	t-	-0.7903	1.4338	0.3821	316.4	142.2	-
15	-22	3080	Jan 28	21:12:40	5045	13358	N	a-	1.0655	0.8894	-0.0840	233.0	-	-
67	30	3080	Jun 24	11:49:03	5048	13363	N	-t	1.2850	0.5311	-0.5305	213.9	-	-
55	18	3080	Dec 19	01:31:56	5052	13369	P	-a	-0.9753	1.0673	0.0691	258.8	58.4	-
44	14	3081	Jun 13	16:51:18	5056	13375	P	-t	0.4834	1.9788	0.9632	331.2	197.4	-

45	07	3081	Dec 08	11:11:31	5060	13381	T	-p	-0.3013	2.3317	1.2790	349.9	215.9	76.8
31	-04	3082	Jun 03	05:00:46	5063	13387	T	p-	-0.2879	2.3126	1.3466	320.3	206.4	80.0
19	-16	3082	Nov 27	13:40:57	5067	13393	T	t-	0.4117	2.1496	1.0564	363.2	213.3	38.5
22	-17	3083	May 23	21:26:36	5071	13399	P	a-	-0.9967	1.0026	0.0549	242.4	50.6	-
62	26	3084	Apr 13	03:17:50	5078	13410	P	-a	0.9074	1.1967	0.1892	276.2	96.9	-
48	14	3084	Oct 06	05:15:21	5082	13416	P	-a	-0.9869	1.0455	0.0487	260.9	49.9	-
53	13	3085	Apr 02	10:36:16	5086	13422	T+	-p	0.2026	2.5197	1.4534	362.0	225.6	93.0
39	04	3085	Sep 25	19:47:45	5090	13428	T-	-p	-0.2277	2.4169	1.4630	316.4	206.9	87.5
26	-09	3086	Mar 22	11:15:39	5094	13434	P	t-	-0.5118	1.9677	0.8709	358.0	201.4	-
26	-21	3086	Sep 15	12:41:15	5098	13440	P	a-	0.4946	1.9263	0.9739	303.1	186.1	-
16	-19	3087	Mar 11	11:31:47	5102	13446	N	h-	-1.1889	0.7144	-0.3611	241.5	-	-
70	33	3087	Aug 06	16:58:01	5105	13451	N	-h	-1.3866	0.3215	-0.6943	160.9	-	-
56	21	3088	Jan 30	05:27:32	5109	13457	P	-a	0.9633	1.0888	0.0919	259.7	66.8	-
58	09	3088	Jul 25	21:47:32	5113	13463	P	-t	-0.6647	1.6691	0.6078	336.1	174.7	-
47	11	3089	Jan 18	20:22:28	5117	13469	T	-p	0.2755	2.3375	1.3671	314.4	202.6	79.9
34	-01	3089	Jul 14	22:23:10	5121	13475	T+	pp	0.0956	2.7157	1.6500	372.1	234.3	104.0
24	-14	3090	Jan 08	11:40:20	5125	13481	T	p-	-0.3980	2.1225	1.1328	316.7	196.9	52.8
63	29	3091	May 25	04:47:08	5136	13498	P	-a	-1.0213	0.9627	0.0048	241.7	15.3	-
54	16	3091	Nov 18	08:28:00	5140	13504	N	-t	1.1104	0.8682	-0.2266	269.4	-	-
53	16	3092	May 13	21:31:39	5144	13510	T	-p	-0.3024	2.2789	1.3267	312.5	202.2	77.1
41	07	3092	Nov 06	08:36:06	5148	13516	T	-p	0.3940	2.1714	1.0994	356.6	212.9	49.9
31	-07	3093	May 03	12:40:22	5152	13522	T	p-	0.4286	2.0663	1.0766	320.8	197.6	41.6
18	-17	3093	Oct 26	14:45:49	5156	13528	T	a-	-0.3473	2.2283	1.2133	334.9	208.3	67.5
19	-17	3094	Apr 22	21:54:30	5160	13534	N	t-	1.2128	0.6572	-0.3915	228.2	-	-
71	37	3094	Sep 16	19:52:41	5163	13539	Ne	-a	1.5099	0.0608	-0.8867	65.5	-	-
61	23	3095	Mar 13	05:54:33	5167	13545	Nx	-t	-1.0207	1.0342	-0.0634	288.9	-	-
50	12	3095	Sep 06	12:39:07	5171	13551	P	-a	0.8199	1.3328	0.3739	274.1	128.2	-
48	14	3096	Mar 01	07:22:49	5175	13557	T	-p	-0.3018	2.3358	1.2730	354.0	217.3	76.7

39 01 3096 Aug 26 01:51:32 5179 13563 T+ pp 0.0825 2.7092 1.7038 343.6 222.4 101.3

25 -11 3097 Feb 18 15:50:31 5183 13569 T a- 0.4089 2.1112 1.1042 323.8 198.9 48.0

18 -19 3097 Aug 15 08:08:00 5187 13575 P t- -0.7088 1.5852 0.5301 327.9 164.0 -

16 -21 3098 Feb 08 06:03:34 5190 13581 N a- 1.0591 0.9004 -0.0716 233.9 - -

68 31 3098 Jul 05 18:26:12 5194 13586 N -t 1.3633 0.3858 -0.6726 184.3 - -

56 19 3098 Dec 30 10:08:34 5198 13592 P -a -0.9876 1.0468 0.0446 257.7 47.2 -

45 15 3099 Jun 24 23:57:56 5202 13598 P -t 0.5548 1.8453 0.8347 324.0 187.4 -

46 08 3099 Dec 19 19:22:17 5206 13604 T -p -0.3178 2.3039 1.2462 350.7 215.1 73.2

32 -03 3100 Jun 14 12:33:47 5210 13610 T- p- -0.2212 2.4328 1.4710 321.4 209.7 89.0

20 -15 3100 Dec 08 21:26:18 5214 13616 T t- 0.3873 2.1962 1.0993 365.5 215.9 50.4

32ND CENTURY CE

In the 32nd century CE the total number of lunar eclipses will be --- lunar eclipses:
--- penumbral lunar eclipses, --- partial lunar eclipses, --- total lunar eclipses
(--- central total lunar eclipses, --- non-central total lunar eclipses).

PHASE													
DURATIONS													
SEQ.	REL.	CALENDAR	TD	ΔT	LUNA	ECL.	QSE	GAMMA	PEN.	UM.	PEN.	PAR.	TOTAL
NUM.	NUM.	DATE	OF	s	NUM	TYPE			MAG.	MAG.	m	m	m
GREATEST													
ECLIPSE													

23 -16 3101 Jun 04 05:13:08 5218 13622 P a- -0.9381 1.1092 0.1634 252.0 86.1 -

63 27 3102 Apr 25 11:12:11 5225 13633 P -a 0.9506 1.1175 0.1098 270.1 74.9 -

49	15	3102	Oct 18	13:02:00	5229	13639	N	-a	-1.0316	0.9632	-0.0333	251.8	-	-
54	14	3103	Apr 14	18:14:37	5233	13645	T+	-p	0.2411	2.4488	1.3830	361.6	224.1	88.2
40	05	3103	Oct 08	03:40:51	5237	13651	T	-p	-0.2813	2.3191	1.3639	314.2	203.8	80.4
27	-08	3104	Apr 02	18:48:49	5241	13657	P	t-	-0.4781	2.0280	0.9342	360.2	206.2	-
27	-20	3104	Sep 26	20:26:57	5245	13663	T	a-	0.4364	2.0351	1.0790	307.7	192.4	41.2
17	-18	3105	Mar 22	19:23:54	5249	13669	N	h-	-1.1617	0.7619	-0.3085	247.4	-	-
71	34	3105	Aug 17	23:56:01	5252	13674	N	-h	-1.4671	0.1762	-0.8440	121.2	-	-
57	22	3106	Feb 10	14:10:28	5256	13680	P	-a	0.9677	1.0793	0.0853	258.1	64.3	-
59	10	3106	Aug 07	04:19:34	5260	13686	P	-t	-0.7513	1.5113	0.4478	326.6	154.1	-
48	12	3107	Jan 31	05:14:19	5264	13692	T	-p	0.2813	2.3267	1.3565	314.1	202.3	79.1
35	00	3107	Jul 27	04:52:55	5268	13698	T+	pp	0.0082	2.8752	1.8111	372.1	235.1	106.4
25	-13	3108	Jan 20	20:26:23	5272	13704	T	p-	-0.3936	2.1317	1.1395	317.9	197.6	54.1
21	-13	3108	Jul 15	08:59:25	5276	13710	P	h-	0.7684	1.4588	0.4374	306.7	146.5	-
64	30	3109	Jun 05	12:28:40	5283	13721	N	-a	-1.0794	0.8541	-0.1000	229.6	-	-
55	17	3109	Nov 29	16:05:51	5287	13727	N	-t	1.1393	0.8168	-0.2812	263.0	-	-
54	17	3110	May 26	05:23:00	5291	13733	T	-p	-0.3581	2.1761	1.2253	310.2	198.6	66.3
42	08	3110	Nov 18	16:16:10	5295	13739	T	-t	0.4274	2.1104	1.0377	353.8	208.8	31.2
32	-06	3111	May 15	20:26:24	5299	13745	T	p-	0.3796	2.1563	1.1664	324.6	202.8	59.8
19	-16	3111	Nov 07	22:41:00	5303	13751	T	p-	-0.3086	2.2992	1.2844	335.7	210.6	75.9
20	-16	3112	May 04	05:23:22	5307	13757	N	t-	1.1689	0.7376	-0.3109	240.5	-	-
62	24	3113	Mar 24	13:35:42	5314	13768	N	-t	-1.0465	0.9850	-0.1089	282.9	-	-
51	13	3113	Sep 17	20:16:45	5318	13774	P	-a	0.8834	1.2182	0.2553	266.3	108.0	-
49	15	3114	Mar 13	15:28:11	5322	13780	T	-p	-0.3188	2.3021	1.2444	351.7	215.7	73.2
40	02	3114	Sep 07	09:03:01	5326	13786	T+	pp	0.1534	2.5817	1.5712	344.1	221.2	97.2
26	-10	3115	Mar 03	00:22:50	5330	13792	T	a-	0.3963	2.1321	1.1293	323.2	199.7	52.9
19	-18	3115	Aug 27	14:48:55	5334	13798	P	t-	-0.6300	1.7315	0.6728	337.7	180.9	-
17	-20	3116	Feb 20	14:51:23	5338	13804	N	a-	1.0504	0.9155	-0.0547	235.2	-	-
69	32	3116	Jul 17	01:00:59	5342	13809	N	-t	1.4434	0.2375	-0.8182	146.2	-	-

57	20	3117	Jan 10	18:48:09	5346	13815	P	-a	-0.9970	1.0314	0.0258	257.1	36.1	-
46	16	3117	Jul 06	07:01:50	5350	13821	P	-t	0.6288	1.7072	0.7011	315.7	175.2	-
47	09	3117	Dec 31	03:37:06	5354	13827	T	-p	-0.3302	2.2834	1.2214	351.5	214.5	70.1
33	-02	3118	Jun 25	20:03:19	5358	13833	T	p-	-0.1513	2.5592	1.6010	322.2	212.1	95.1
21	-14	3118	Dec 20	05:18:43	5362	13839	T	p-	0.3694	2.2306	1.1307	367.3	217.8	57.2
24	-15	3119	Jun 15	12:53:40	5366	13845	P	a-	-0.8745	1.2252	0.2808	261.5	111.1	-
64	28	3120	May 05	18:57:43	5373	13856	P	-a	1.0003	1.0264	0.0185	262.3	31.2	-
50	16	3120	Oct 28	20:57:19	5377	13862	N	-a	-1.0702	0.8925	-0.1040	243.5	-	-
55	15	3121	Apr 25	01:43:02	5381	13868	T	-p	0.2871	2.3641	1.2989	360.5	221.7	80.7
41	06	3121	Oct 18	11:42:01	5385	13874	T	-p	-0.3285	2.2335	1.2766	312.1	200.5	72.1
28	-07	3122	Apr 14	02:14:52	5389	13880	T	t-	-0.4384	2.0991	1.0086	362.6	211.2	15.4
28	-19	3122	Oct 08	04:17:59	5393	13886	T	p-	0.3829	2.1351	1.1751	311.6	197.4	59.6
18	-17	3123	Apr 03	03:11:38	5397	13892	N	h-	-1.1301	0.8170	-0.2479	253.8	-	-
72	35	3123	Aug 29	06:55:44	5401	13897	Ne	-h	-1.5449	0.0358	-0.9891	55.5	-	-
58	23	3124	Feb 21	22:52:05	5405	13903	P	-a	0.9736	1.0667	0.0761	256.2	60.7	-
60	11	3124	Aug 17	10:52:02	5409	13909	P	-t	-0.8369	1.3556	0.2896	315.6	127.1	-
49	13	3125	Feb 10	14:05:13	5413	13915	T	-p	0.2881	2.3139	1.3443	313.8	201.9	78.1
36	01	3125	Aug 06	11:25:09	5417	13921	T	pp	-0.0776	2.7473	1.6843	370.9	234.1	104.7
26	-12	3126	Jan 31	05:10:58	5421	13927	T	p-	-0.3884	2.1424	1.1482	319.0	198.4	55.7
22	-12	3126	Jul 26	15:55:45	5425	13933	P	h-	0.6872	1.6059	0.5881	314.8	165.4	-
65	31	3127	Jun 16	20:05:50	5432	13944	N	-a	-1.1415	0.7385	-0.2122	215.6	-	-
56	18	3127	Dec 10	23:50:15	5436	13950	N	-t	1.1628	0.7750	-0.3257	257.4	-	-
55	18	3128	Jun 05	13:07:05	5441	13956	T	-a	-0.4199	2.0622	1.1124	307.1	193.6	48.6
43	09	3128	Nov 29	00:05:39	5445	13962	P	-t	0.4535	2.0627	0.9896	351.2	205.3	-
33	-05	3129	May 26	04:01:46	5449	13968	T	p-	0.3223	2.2616	1.2712	328.5	207.9	73.9
20	-15	3129	Nov 18	06:46:58	5453	13974	T	p-	-0.2780	2.3552	1.3407	335.9	212.0	81.1
21	-15	3130	May 15	12:41:35	5457	13980	N	t-	1.1170	0.8329	-0.2157	253.8	-	-
63	25	3131	Apr 04	21:09:41	5464	13991	N	-t	-1.0782	0.9249	-0.1651	275.3	-	-

52	14	3131	Sep 29	03:58:39	5468	13997	P	-a	0.9430	1.1113	0.1438	258.2	82.5	-
50	16	3132	Mar 23	23:28:37	5472	14003	T	-p	-0.3407	2.2592	1.2070	349.1	213.5	68.1
41	03	3132	Sep 17	16:16:36	5476	14009	T+	-p	0.2217	2.4592	1.4431	344.0	218.8	90.5
27	-09	3133	Mar 13	08:52:01	5480	14015	T	a-	0.3804	2.1589	1.1608	322.8	200.8	58.3
20	-17	3133	Sep 06	21:32:27	5484	14021	P	t-	-0.5537	1.8735	0.8108	346.2	194.3	-
18	-19	3134	Mar 02	23:36:02	5489	14027	N	a-	1.0390	0.9353	-0.0328	237.0	-	-
70	33	3134	Jul 28	07:37:35	5492	14032	Ne	-t	1.5220	0.0919	-0.9612	91.9	-	-
58	21	3135	Jan 22	03:29:17	5496	14038	P	-a	-1.0044	1.0193	0.0108	256.7	23.4	-
47	17	3135	Jul 17	14:05:45	5500	14044	P	-t	0.7037	1.5677	0.5656	306.4	160.3	-
48	10	3136	Jan 11	11:54:16	5504	14050	T	-p	-0.3400	2.2673	1.2015	352.4	214.2	67.5
34	-01	3136	Jul 06	03:30:58	5508	14056	T-	pp	-0.0793	2.6897	1.7347	322.3	213.4	98.8
22	-13	3136	Dec 30	13:15:01	5512	14062	T	p-	0.3543	2.2594	1.1570	368.7	219.2	62.2
25	-14	3137	Jun 25	20:30:09	5516	14068	P	a-	-0.8075	1.3478	0.4044	270.5	131.0	-
65	29	3138	May 17	02:34:46	5524	14079	N	-a	1.0563	0.9240	-0.0844	252.4	-	-
51	17	3138	Nov 09	05:01:03	5528	14085	N	-a	-1.1026	0.8329	-0.1636	236.0	-	-
56	16	3139	May 06	09:02:08	5532	14091	T	-t	0.3401	2.2665	1.2020	358.8	218.2	68.8
42	07	3139	Oct 29	19:50:43	5536	14097	T	-p	-0.3696	2.1589	1.2003	310.0	197.1	62.8
29	-06	3140	Apr 24	09:30:29	5540	14103	T	t-	-0.3901	2.1860	1.0991	365.2	216.6	50.6
29	-18	3140	Oct 18	12:16:10	5544	14109	T	p-	0.3358	2.2238	1.2594	314.9	201.2	70.7
19	-16	3141	Apr 13	10:50:43	5548	14115	N	h-	-1.0909	0.8861	-0.1731	261.4	-	-
59	24	3142	Mar 04	07:28:52	5556	14126	P	-a	0.9842	1.0453	0.0586	253.4	53.3	-
61	12	3142	Aug 28	17:27:33	5560	14132	P	-t	-0.9194	1.2056	0.1368	303.2	89.4	-
50	14	3143	Feb 21	22:54:07	5564	14138	T	-p	0.2968	2.2974	1.3289	313.4	201.4	76.8
37	02	3143	Aug 17	17:58:18	5568	14144	T-	pp	-0.1633	2.5897	1.5275	368.7	231.2	98.9
27	-11	3144	Feb 11	13:55:25	5572	14150	T	p-	-0.3834	2.1522	1.1565	320.2	199.2	57.2
23	-11	3144	Aug 05	22:52:13	5576	14156	P	h-	0.6048	1.7556	0.7408	321.8	180.4	-
66	32	3145	Jun 27	03:38:46	5584	14167	N	-a	-1.2073	0.6164	-0.3315	199.0	-	-
57	19	3145	Dec 21	07:41:48	5588	14173	N	-t	1.1806	0.7435	-0.3593	253.0	-	-

56	19	3146	Jun 16	20:46:45	5592	14179	P	-a	-0.4849	1.9426	0.9933	303.4	187.3	-
44	10	3146	Dec 10	08:02:05	5596	14185	P	-t	0.4746	2.0240	0.9509	348.9	202.3	-
34	-04	3147	Jun 06	11:31:35	5600	14191	T+	p-	0.2612	2.3743	1.3830	332.2	212.5	84.7
21	-14	3147	Nov 29	15:00:07	5604	14197	T-	p-	-0.2526	2.4016	1.3874	335.8	212.9	84.8
22	-14	3148	May 25	19:51:04	5608	14203	N	t-	1.0585	0.9401	-0.1085	267.5	-	-
64	26	3149	Apr 15	04:35:46	5616	14214	N	-t	-1.1165	0.8526	-0.2332	265.7	-	-
53	15	3149	Oct 09	11:47:09	5620	14220	P	-a	0.9965	1.0155	0.0432	250.2	45.9	-
51	17	3150	Apr 04	07:21:47	5624	14226	T	-p	-0.3692	2.2039	1.1575	345.9	210.7	60.3
42	04	3150	Sep 28	23:36:26	5628	14232	T	-p	0.2840	2.3478	1.3260	343.4	215.7	81.3
28	-08	3151	Mar 24	17:15:04	5632	14238	T	p-	0.3591	2.1955	1.2023	322.6	202.2	64.4
21	-16	3151	Sep 18	04:20:11	5637	14244	P	t-	-0.4813	2.0087	0.9417	353.2	204.9	-
19	-18	3152	Mar 13	08:15:22	5641	14250	N	a-	1.0236	0.9624	-0.0032	239.5	-	-
59	22	3153	Feb 01	12:09:07	5648	14261	Nx	-a	-1.0125	1.0056	-0.0053	256.2	-	-
48	18	3153	Jul 27	21:10:03	5652	14267	P	-t	0.7789	1.4280	0.4294	296.1	142.2	-
49	11	3154	Jan 21	20:12:47	5656	14273	T	-p	-0.3479	2.2544	1.1855	353.3	213.9	65.2
35	00	3154	Jul 17	10:57:12	5661	14279	T-	pp	-0.0056	2.8237	1.8713	321.8	213.7	100.1
23	-12	3155	Jan 10	21:14:57	5665	14285	T	p-	0.3426	2.2818	1.1778	369.8	220.4	65.7
26	-13	3155	Jul 07	04:02:50	5669	14291	P	a-	-0.7375	1.4760	0.5329	279.0	147.6	-
66	30	3156	May 27	10:01:55	5676	14302	N	-a	1.1193	0.8088	-0.2003	239.8	-	-
52	18	3156	Nov 19	13:14:09	5681	14308	N	-a	-1.1280	0.7864	-0.2101	229.8	-	-
57	17	3157	May 16	16:11:44	5685	14314	T	-t	0.3998	2.1565	1.0927	356.1	213.1	48.4
43	08	3157	Nov 09	04:07:21	5689	14320	T	-p	-0.4041	2.0966	1.1360	308.1	194.0	52.8
30	-05	3158	May 05	16:39:06	5693	14326	T	t-	-0.3361	2.2833	1.2000	367.6	221.7	69.5
30	-17	3158	Oct 29	20:20:53	5697	14332	T	p-	0.2949	2.3012	1.3323	317.6	204.2	78.1
20	-15	3159	Apr 24	18:24:29	5701	14338	N	h-	-1.0465	0.9646	-0.0886	269.4	-	-
60	25	3160	Mar 14	16:02:23	5709	14349	P	-a	0.9979	1.0181	0.0354	250.1	41.5	-
62	13	3160	Sep 08	00:06:25	5713	14355	Nx	-t	-0.9986	1.0618	-0.0101	289.6	-	-
51	15	3161	Mar 04	07:38:02	5717	14361	T	-p	0.3097	2.2731	1.3061	312.8	200.7	74.7

38	03	3161	Aug 28	00:37:03	5721	14367	T-	pp	-0.2448	2.4399	1.3782	365.5	226.8	89.0
28	-10	3162	Feb 21	22:35:26	5725	14373	T	p-	-0.3752	2.1680	1.1711	321.5	200.3	59.7
24	-10	3162	Aug 17	05:53:32	5730	14379	P	h-	0.5255	1.8998	0.8876	327.3	191.9	-
67	33	3163	Jul 08	11:09:48	5737	14390	N	-a	-1.2749	0.4911	-0.4546	179.5	-	-
58	20	3164	Jan 01	15:37:48	5741	14396	N	-t	1.1947	0.7183	-0.3859	249.4	-	-
57	20	3164	Jun 27	04:19:42	5746	14402	P	-a	-0.5554	1.8133	0.8640	298.6	178.9	-
45	11	3164	Dec 20	16:06:44	5750	14408	P	-t	0.4896	1.9962	0.9236	346.9	199.9	-
35	-03	3165	Jun 16	18:52:53	5754	14414	T+	pp	0.1934	2.4993	1.5066	335.6	216.6	93.0
22	-13	3165	Dec 09	23:21:45	5758	14420	T-	p-	-0.2335	2.4364	1.4228	335.4	213.3	87.1
23	-13	3166	Jun 06	02:51:41	5762	14426	P	t-	0.9933	1.0601	0.0110	281.3	25.3	-
65	27	3167	Apr 26	11:53:58	5770	14437	N	-t	-1.1610	0.7686	-0.3126	253.8	-	-
54	16	3167	Oct 20	19:40:44	5774	14443	N	-a	1.0452	0.9287	-0.0488	242.4	-	-
52	18	3168	Apr 14	15:09:27	5778	14449	T	-p	-0.4030	2.1389	1.0986	342.3	207.1	48.5
43	05	3168	Oct 09	07:00:53	5782	14455	T	-a	0.3413	2.2457	1.2177	342.6	212.0	69.2
29	-07	3169	Apr 04	01:32:12	5787	14461	T	p-	0.3324	2.2420	1.2540	322.6	204.0	70.9
22	-15	3169	Sep 28	11:13:37	5791	14467	T	t-	-0.4139	2.1345	1.0631	359.1	213.1	40.6
20	-17	3170	Mar 24	16:50:03	5795	14473	P	a-	1.0045	0.9962	0.0331	242.6	39.4	-
60	23	3171	Feb 12	20:47:24	5803	14484	N	-a	-1.0212	0.9906	-0.0223	255.4	-	-
49	19	3171	Aug 08	04:17:16	5807	14490	P	-h	0.8523	1.2918	0.2963	284.9	120.1	-
50	12	3172	Feb 02	04:30:18	5811	14496	T	-a	-0.3560	2.2408	1.1694	354.0	213.7	62.8
36	01	3172	Jul 27	18:23:15	5815	14502	T+	pp	0.0687	2.7069	1.7563	320.7	212.9	99.0
24	-11	3173	Jan 21	05:16:31	5819	14508	T	p-	0.3324	2.3011	1.1961	370.6	221.3	68.6
27	-12	3173	Jul 17	11:34:10	5823	14514	P	a-	-0.6666	1.6062	0.6628	286.8	161.4	-
67	31	3174	Jun 07	17:21:58	5831	14525	N	-a	1.1869	0.6853	-0.3249	224.3	-	-
53	19	3174	Nov 30	21:35:04	5835	14531	N	-a	-1.1474	0.7507	-0.2456	224.7	-	-
58	18	3175	May 27	23:12:05	5840	14537	P	-t	0.4666	2.0338	0.9705	352.3	206.0	-
44	09	3175	Nov 20	12:31:05	5844	14543	T	-p	-0.4328	2.0449	1.0823	306.4	191.1	41.7
31	-04	3176	May 15	23:38:16	5848	14549	T	pp	-0.2741	2.3951	1.3156	369.8	226.5	83.7

31	-16	3176	Nov 09	04:33:10	5852	14555	T+	p-	0.2604	2.3668	1.3933	319.9	206.4	83.1
21	-14	3177	May 05	01:48:56	5856	14561	P	h-	-0.9935	1.0587	0.0115	278.3	25.6	-
61	26	3178	Mar 26	00:29:36	5864	14572	P	-a	1.0175	0.9800	0.0017	245.7	9.0	-
63	14	3178	Sep 19	06:49:55	5868	14578	N	-t	-1.0735	0.9262	-0.1491	274.8	-	-
52	16	3179	Mar 15	16:17:30	5872	14584	T	-p	0.3262	2.2419	1.2765	312.1	199.7	71.8
39	04	3179	Sep 08	07:20:17	5877	14590	T	pp	-0.3231	2.2961	1.2345	361.4	220.9	73.8
29	-09	3180	Mar 04	07:11:39	5881	14596	T	p-	-0.3644	2.1881	1.1904	322.9	201.7	62.7
25	-09	3180	Aug 27	12:57:54	5885	14602	T	a-	0.4477	2.0415	1.0314	331.7	200.9	27.7
68	34	3181	Jul 18	18:39:22	5893	14613	N	-a	-1.3440	0.3635	-0.5805	156.1	-	-
59	21	3182	Jan 11	23:37:17	5897	14619	N	-t	1.2061	0.6978	-0.4071	246.3	-	-
58	21	3182	Jul 08	11:50:37	5901	14625	P	-a	-0.6272	1.6819	0.7320	293.0	168.7	-
46	12	3183	Jan 01	00:16:57	5905	14631	P	-t	0.5009	1.9749	0.9032	345.1	197.9	-
36	-02	3183	Jun 28	02:08:54	5910	14637	T+	pp	0.1222	2.6310	1.6366	338.4	219.7	98.8
23	-12	3183	Dec 21	07:49:15	5914	14643	T-	p-	-0.2186	2.4632	1.4505	334.9	213.5	88.7
24	-12	3184	Jun 16	09:45:27	5918	14649	P	t-	0.9228	1.1898	0.1401	294.7	88.8	-
66	28	3185	May 06	19:03:40	5926	14660	N	-t	-1.2124	0.6719	-0.4047	239.0	-	-
55	17	3185	Oct 31	03:42:04	5930	14666	N	-a	1.0870	0.8547	-0.1280	235.1	-	-
53	19	3186	Apr 25	22:49:53	5934	14672	T	-t	-0.4433	2.0617	1.0275	338.0	202.5	26.2
44	06	3186	Oct 20	14:31:19	5938	14678	T	-a	0.3929	2.1543	1.1201	341.5	207.9	53.2
30	-06	3187	Apr 15	09:42:20	5943	14684	T	p-	0.2993	2.3001	1.3173	322.8	206.0	77.4
23	-14	3187	Oct 09	18:13:50	5947	14690	T	t-	-0.3524	2.2496	1.1737	363.8	219.3	65.1
21	-16	3188	Apr 04	01:16:17	5951	14696	P	a-	0.9785	1.0425	0.0822	246.8	61.7	-
61	24	3189	Feb 23	05:21:21	5959	14707	N	-a	-1.0331	0.9695	-0.0449	254.0	-	-
50	20	3189	Aug 18	11:27:46	5963	14713	P	-h	0.9236	1.1598	0.1667	272.8	91.5	-
51	13	3190	Feb 12	12:45:01	5967	14719	T	-a	-0.3657	2.2238	1.1507	354.6	213.3	59.7
37	02	3190	Aug 08	01:50:37	5972	14725	T+	pp	0.1423	2.5713	1.6221	319.0	211.0	95.5
25	-10	3191	Feb 01	13:19:16	5976	14731	T	p-	0.3233	2.3177	1.2125	371.2	222.2	71.0
28	-11	3191	Jul 28	19:02:11	5980	14737	P	a-	-0.5932	1.7414	0.7971	293.9	173.3	-

68	32	3192	Jun 18	00:33:55	5988	14748	N	-h	1.2599	0.5521	-0.4596	204.7	-	-
54	20	3192	Dec 11	06:03:39	5992	14754	N	-a	-1.1615	0.7247	-0.2714	220.8	-	-
59	19	3193	Jun 07	06:04:16	5996	14760	P	-t	0.5394	1.9000	0.8371	347.2	196.4	-
45	10	3193	Nov 30	21:02:13	6001	14766	T	-a	-0.4556	2.0041	1.0395	305.0	188.7	29.2
32	-03	3194	May 27	06:31:56	6005	14772	T-	pp	-0.2072	2.5160	1.4402	371.5	230.4	94.1
32	-15	3194	Nov 20	12:50:36	6009	14778	T+	p-	0.2306	2.4237	1.4456	322.0	208.2	86.8
22	-13	3195	May 16	09:09:12	6013	14784	P	h-	-0.9362	1.1609	0.1197	287.0	81.0	-
62	27	3196	Apr 05	08:50:33	6021	14795	N	-a	1.0425	0.9318	-0.0420	240.1	-	-
64	15	3196	Sep 29	13:39:43	6025	14801	N	-t	-1.1426	0.8011	-0.2777	259.3	-	-
53	17	3197	Mar 26	00:50:09	6030	14807	T	-p	0.3483	2.2005	1.2368	311.1	198.3	67.4
40	05	3197	Sep 18	14:11:39	6034	14813	T	-t	-0.3952	2.1639	1.1022	356.7	213.9	50.8
30	-08	3198	Mar 15	15:40:25	6038	14819	T	p-	-0.3480	2.2185	1.2203	324.6	203.5	67.0
26	-08	3198	Sep 07	20:09:58	6042	14825	T	a-	0.3753	2.1736	1.1651	334.8	207.4	60.8
69	35	3199	Jul 30	02:08:02	6050	14836	N	-a	-1.4140	0.2346	-0.7084	126.8	-	-
60	22	3200	Jan 23	07:38:45	6055	14842	N	-t	1.2159	0.6797	-0.4251	243.4	-	-
59	22	3200	Jul 18	19:17:40	6059	14848	P	-a	-0.7021	1.5450	0.5939	286.2	155.6	-

33RD CENTURY CE

In the 33rd century CE the total number of lunar eclipses will be --- lunar eclipses:
 --- penumbral lunar eclipses, --- partial lunar eclipses, --- total lunar eclipses
 (--- central total lunar eclipses, --- non-central total lunar eclipses).

PHASE

DURATIONS

SEQ.	REL.	CALENDAR	TD	ΔT	LUNA	ECL.	QSE	GAMMA	PEN.	UM.	PEN.	PAR.	TOTAL
NUM.	NUM.	DATE	OF	s	NUM	TYPE			MAG.	MAG.	m	m	m

GREATEST

ECLIPSE

47	13	3201	Jan 11	08:31:39	6063	14854	P	-t	0.5091	1.9591	0.8891	343.4	196.4	-
37	-01	3201	Jul 08	09:19:03	6067	14860	T+	pp	0.0467	2.7707	1.7739	340.7	221.7	102.1
24	-11	3201	Dec 31	16:23:14	6072	14866	T-	p-	-0.2083	2.4814	1.4701	334.2	213.4	89.7
25	-11	3202	Jun 27	16:32:36	6076	14872	P	t-	0.8474	1.3287	0.2779	307.5	122.9	-
67	29	3203	May 18	02:06:38	6084	14883	N	-t	-1.2693	0.5651	-0.5068	220.8	-	-
56	18	3203	Nov 11	11:49:47	6088	14889	N	-a	1.1230	0.7912	-0.1968	228.5	-	-
54	20	3204	May 06	06:23:07	6092	14895	P	-t	-0.4904	1.9722	0.9443	333.0	196.6	-
45	07	3204	Oct 30	22:08:37	6097	14901	T	-a	0.4379	2.0748	1.0345	340.5	203.7	29.3
31	-05	3205	Apr 25	17:46:21	6101	14907	T+	p-	0.2604	2.3688	1.3912	323.0	208.0	83.6
24	-13	3205	Oct 20	01:21:06	6105	14913	T	p-	-0.2969	2.3538	1.2733	367.6	224.0	78.8
22	-15	3206	Apr 15	09:36:39	6109	14919	P	a-	0.9477	1.0976	0.1400	251.5	79.9	-
62	25	3207	Mar 06	13:51:18	6117	14930	N	-a	-1.0476	0.9436	-0.0719	252.1	-	-
51	21	3207	Aug 29	18:42:12	6122	14936	P	-h	0.9922	1.0328	0.0417	260.1	46.4	-
52	14	3208	Feb 23	20:56:14	6126	14942	T	-a	-0.3775	2.2027	1.1284	354.9	212.6	55.7
38	03	3208	Aug 18	09:20:27	6130	14948	T+	-p	0.2138	2.4396	1.4911	316.7	208.1	89.4
26	-09	3209	Feb 11	21:18:46	6135	14954	T	p-	0.3119	2.3384	1.2338	371.8	223.2	74.0
29	-10	3209	Aug 08	02:31:46	6139	14960	P	a-	-0.5214	1.8739	0.9281	300.2	183.0	-
69	33	3210	Jun 29	07:40:41	6147	14971	N	-h	1.3360	0.4134	-0.6002	180.2	-	-
55	21	3210	Dec 22	14:37:19	6151	14977	N	-a	-1.1720	0.7052	-0.2903	217.7	-	-
60	20	3211	Jun 18	12:49:21	6155	14983	P	-t	0.6170	1.7575	0.6946	340.7	183.7	-
46	11	3211	Dec 12	05:39:37	6160	14989	T	-a	-0.4732	1.9727	1.0064	303.9	186.7	11.8
33	-02	3212	Jun 06	13:16:32	6164	14995	T-	pp	-0.1327	2.6509	1.5785	372.7	233.3	101.5
33	-14	3212	Nov 30	21:15:57	6168	15001	T+	p-	0.2082	2.4672	1.4846	323.7	209.5	89.2
23	-12	3213	May 26	16:21:46	6173	15007	P	h-	-0.8720	1.2758	0.2404	295.7	112.6	-

63	28	3214	Apr 16	17:04:12	6180	15018	N	-a	1.0738	0.8721	-0.0971	233.1	-	-
65	16	3214	Oct 10	20:37:04	6185	15024	N	-t	-1.2049	0.6886	-0.3938	243.4	-	-
54	18	3215	Apr 06	09:16:35	6189	15030	T	-p	0.3755	2.1497	1.1879	309.8	196.4	61.0
41	06	3215	Sep 29	21:09:13	6193	15036	P	-t	-0.4627	2.0402	0.9781	351.5	205.9	-
31	-07	3216	Mar 26	00:03:32	6198	15042	T	p-	-0.3276	2.2559	1.2576	326.5	205.6	71.7
27	-07	3216	Sep 18	03:27:52	6202	15048	T	a-	0.3067	2.2989	1.2916	336.9	212.2	77.2
70	36	3217	Aug 09	09:38:06	6210	15059	N	-a	-1.4829	0.1079	-0.8347	86.9	-	-
61	23	3218	Feb 02	15:41:18	6214	15065	N	-t	1.2251	0.6625	-0.4415	240.5	-	-
60	23	3218	Jul 30	02:44:01	6219	15071	P	-a	-0.7769	1.4087	0.4558	278.4	139.5	-
48	14	3219	Jan 22	16:48:43	6223	15077	P	-t	0.5160	1.9454	0.8776	341.8	195.1	-
38	00	3219	Jul 19	16:26:17	6227	15083	T-	pp	-0.0304	2.8020	1.8024	342.3	222.5	102.6
25	-10	3220	Jan 12	01:00:30	6232	15089	T-	p-	-0.2005	2.4950	1.4854	333.3	213.3	90.4
26	-10	3220	Jul 07	23:14:15	6236	15095	P	t-	0.7680	1.4751	0.4229	319.5	148.6	-
68	30	3221	May 28	09:02:35	6244	15106	N	-t	-1.3320	0.4478	-0.6196	198.2	-	-
57	19	3221	Nov 21	20:03:51	6248	15112	N	-a	1.1534	0.7382	-0.2550	222.8	-	-
55	21	3222	May 17	13:50:12	6253	15118	P	-t	-0.5433	1.8721	0.8502	327.2	189.1	-
46	08	3222	Nov 11	05:52:47	6257	15124	P	-a	0.4766	2.0069	0.9605	339.5	199.5	-
32	-04	3223	May 07	01:42:32	6261	15130	T+	p-	0.2146	2.4503	1.4778	323.3	210.0	89.3
25	-12	3223	Oct 31	08:35:54	6266	15136	T-	pp	-0.2479	2.4460	1.3610	370.6	227.5	87.6
23	-14	3224	Apr 25	17:48:14	6270	15142	P	a-	0.9099	1.1657	0.2108	257.1	97.1	-
63	26	3225	Mar 16	22:13:08	6278	15153	N	-a	-1.0679	0.9066	-0.1096	248.8	-	-
52	22	3225	Sep 09	02:02:56	6282	15159	N	-h	1.0562	0.9148	-0.0750	247.0	-	-
53	15	3226	Mar 06	05:02:00	6287	15165	T	-h	-0.3929	2.1748	1.1000	354.9	211.6	49.7
39	04	3226	Aug 29	16:52:50	6291	15171	T	-p	0.2835	2.3117	1.3633	313.9	204.2	80.5
27	-08	3227	Feb 23	05:16:33	6295	15177	T	p-	0.2991	2.3613	1.2579	372.2	224.2	77.0
30	-09	3227	Aug 19	10:00:55	6300	15183	T	a-	-0.4497	2.0066	1.0586	305.7	191.1	35.7
70	34	3228	Jul 09	14:40:47	6308	15194	N	-h	1.4163	0.2673	-0.7487	147.4	-	-
56	22	3229	Jan 01	23:17:03	6312	15200	N	-a	-1.1781	0.6934	-0.3011	215.5	-	-

61	21	3229	Jun 28	19:29:12	6316	15206	P	-t	0.6981	1.6088	0.5456	332.5	167.2	-
47	12	3229	Dec 22	14:21:47	6321	15212	P	-a	-0.4868	1.9485	0.9806	303.1	185.1	-
34	-01	3230	Jun 17	19:58:13	6325	15218	T-	pp	-0.0556	2.7907	1.7216	372.9	234.9	105.5
34	-13	3230	Dec 12	05:46:07	6329	15224	T+	p-	0.1903	2.5021	1.5152	325.3	210.5	90.9
24	-11	3231	Jun 06	23:30:18	6334	15230	P	h-	-0.8034	1.3988	0.3691	304.0	136.4	-
64	29	3232	Apr 27	01:11:29	6342	15241	N	-a	1.1106	0.8022	-0.1625	224.6	-	-
66	17	3232	Oct 21	03:42:42	6346	15247	N	-t	-1.2604	0.5885	-0.4975	227.5	-	-
55	19	3233	Apr 16	17:34:20	6351	15253	T	-a	0.4099	2.0856	1.1257	308.0	193.7	51.0
42	07	3233	Oct 10	04:17:12	6355	15259	P	-t	-0.5223	1.9312	0.8686	346.2	197.5	-
32	-06	3234	Apr 06	08:17:56	6359	15265	T	p-	-0.3004	2.3059	1.3075	328.6	208.1	77.2
28	-06	3234	Sep 29	10:53:52	6364	15271	T+	p-	0.2439	2.4136	1.4072	338.2	215.4	87.2
62	24	3236	Feb 13	23:41:31	6376	15288	N	-t	1.2360	0.6416	-0.4608	236.9	-	-
61	24	3236	Aug 09	10:08:50	6380	15294	P	-a	-0.8524	1.2713	0.3159	269.4	118.8	-
49	15	3237	Feb 02	01:07:25	6385	15300	P	-t	0.5221	1.9325	0.8678	340.1	193.8	-
39	01	3237	Jul 29	23:30:36	6389	15306	T-	pp	-0.1090	2.6594	1.6564	343.0	222.0	100.2
26	-09	3238	Jan 22	09:40:19	6394	15312	T-	p-	-0.1940	2.5057	1.4984	332.4	213.1	90.9
27	-09	3238	Jul 19	05:52:12	6398	15318	P	t-	0.6859	1.6267	0.5727	330.4	169.3	-
69	31	3239	Jun 08	15:52:00	6406	15329	N	-t	-1.3999	0.3209	-0.7420	169.3	-	-
58	20	3239	Dec 03	04:24:23	6410	15335	N	-a	1.1780	0.6956	-0.3027	218.0	-	-
56	22	3240	May 27	21:11:30	6415	15341	P	-t	-0.6018	1.7616	0.7457	320.3	179.8	-
47	09	3240	Nov 21	13:43:51	6419	15347	P	-a	0.5087	1.9510	0.8987	338.7	195.7	-
33	-03	3241	May 17	09:32:45	6424	15353	T+	p-	0.1632	2.5422	1.5745	323.4	211.8	94.0
26	-11	3241	Nov 10	15:59:00	6428	15359	T-	pp	-0.2059	2.5252	1.4360	373.0	229.9	93.4
24	-13	3242	May 07	01:54:13	6432	15365	P	a-	0.8676	1.2420	0.2896	263.1	112.6	-
64	27	3243	Mar 28	06:29:01	6440	15376	N	-a	-1.0924	0.8619	-0.1548	244.4	-	-
53	23	3243	Sep 20	09:29:56	6445	15382	N	-a	1.1156	0.8053	-0.1834	233.6	-	-
54	16	3244	Mar 16	13:00:14	6449	15388	T	-t	-0.4139	2.1362	1.0613	354.4	209.9	39.5
40	05	3244	Sep 09	00:30:12	6454	15394	T	-p	0.3493	2.1911	1.2423	310.7	199.5	68.5

28	-07	3245	Mar 05	13:08:23	6458	15400	T	p-	0.2814	2.3927	1.2914	372.8	225.6	80.9
31	-08	3245	Aug 29	17:33:52	6462	15406	T	p-	-0.3813	2.1333	1.1826	310.4	197.6	60.8
71	35	3246	Jul 20	21:38:34	6471	15417	N	-h	1.4970	0.1206	-0.8983	100.8	-	-
57	23	3247	Jan 13	07:59:48	6475	15423	N	-a	-1.1822	0.6851	-0.3080	213.9	-	-
62	22	3247	Jul 10	02:02:58	6479	15429	P	-t	0.7833	1.4528	0.3890	322.4	144.9	-
48	13	3248	Jan 02	23:08:51	6484	15435	P	-a	-0.4964	1.9315	0.9624	302.5	183.9	-
35	00	3248	Jun 28	02:33:51	6488	15441	T+	pp	0.0264	2.8429	1.7768	372.2	235.0	106.1
35	-12	3248	Dec 22	14:22:04	6493	15447	T+	p-	0.1778	2.5271	1.5362	326.7	211.4	92.0
25	-10	3249	Jun 17	06:33:36	6497	15453	P	h-	-0.7296	1.5315	0.5070	311.7	156.0	-
65	30	3250	May 08	09:11:52	6505	15464	N	-a	1.1536	0.7213	-0.2392	214.2	-	-
67	18	3250	Nov 01	10:55:47	6510	15470	N	-t	-1.3095	0.5002	-0.5893	211.8	-	-
56	20	3251	Apr 28	01:45:29	6514	15476	T	-a	0.4496	2.0118	1.0538	305.8	190.2	34.1
43	08	3251	Oct 21	11:33:30	6518	15482	P	-t	-0.5756	1.8338	0.7705	340.8	188.9	-
33	-05	3252	Apr 16	16:23:56	6523	15488	T-	p-	-0.2671	2.3671	1.3686	330.8	210.8	82.9
29	-05	3252	Oct 09	18:27:56	6527	15494	T+	p-	0.1871	2.5176	1.5117	338.8	217.5	93.4
63	25	3254	Feb 24	07:39:12	6540	15511	N	-t	1.2490	0.6166	-0.4835	232.5	-	-
62	25	3254	Aug 20	17:35:31	6544	15517	P	-a	-0.9257	1.1383	0.1799	259.5	91.6	-
50	16	3255	Feb 13	09:25:50	6549	15523	P	-t	0.5292	1.9178	0.8566	338.2	192.5	-
40	02	3255	Aug 10	06:32:59	6553	15529	T-	p-	-0.1883	2.5159	1.5090	342.9	220.0	94.4
27	-08	3256	Feb 02	18:20:53	6558	15535	T-	p-	-0.1876	2.5160	1.5114	331.5	212.9	91.5
28	-08	3256	Jul 29	12:28:11	6562	15541	P	t-	0.6023	1.7811	0.7249	340.2	186.1	-
70	32	3257	Jun 18	22:37:18	6570	15552	N	-t	-1.4712	0.1881	-0.8707	130.8	-	-
59	21	3257	Dec 13	12:50:24	6575	15558	N	-a	1.1978	0.6616	-0.3415	214.1	-	-
57	23	3258	Jun 08	04:28:16	6579	15564	P	-t	-0.6647	1.6435	0.6332	312.5	168.3	-
48	10	3258	Dec 02	21:40:21	6584	15570	P	-a	0.5356	1.9045	0.8465	338.1	192.2	-
34	-02	3259	May 28	17:16:41	6588	15576	T+	p-	0.1060	2.6448	1.6817	323.3	213.0	97.5
27	-10	3259	Nov 21	23:30:22	6592	15582	T-	pp	-0.1708	2.5915	1.4983	374.8	231.6	97.2
25	-12	3260	May 17	09:50:31	6597	15588	P	a-	0.8174	1.3329	0.3827	269.7	127.7	-

65	28	3261	Apr 07	14:35:21	6605	15599	N	-a	-1.1241	0.8038	-0.2131	238.2	-	-
54	24	3261	Sep 30	17:04:43	6610	15605	N	-a	1.1693	0.7064	-0.2817	220.2	-	-
55	17	3262	Mar 27	20:50:47	6614	15611	T	-t	-0.4407	2.0870	1.0124	353.4	207.4	18.1
41	06	3262	Sep 20	08:12:47	6618	15617	T	-a	0.4110	2.0785	1.1288	307.2	194.1	51.7
29	-06	3263	Mar 16	20:55:51	6623	15623	T+	p-	0.2601	2.4304	1.3317	373.3	227.1	85.0
32	-07	3263	Sep 10	01:08:06	6627	15629	T	p-	-0.3146	2.2575	1.3035	314.4	202.8	75.4
58	24	3265	Jan 23	16:45:01	6640	15646	N	-a	-1.1848	0.6795	-0.3118	212.6	-	-
63	23	3265	Jul 20	08:34:58	6645	15652	P	-t	0.8690	1.2961	0.2313	310.5	114.6	-
49	14	3266	Jan 13	07:58:51	6649	15658	P	-a	-0.5033	1.9194	0.9494	302.1	183.1	-
36	01	3266	Jul 09	09:08:34	6654	15664	T+	pp	0.1097	2.6887	1.6253	370.5	233.3	103.1
36	-11	3267	Jan 02	23:00:47	6658	15670	T+	p-	0.1681	2.5467	1.5522	328.0	212.1	92.9
26	-09	3267	Jun 28	13:35:21	6662	15676	P	h-	-0.6536	1.6685	0.6489	318.6	172.0	-
66	31	3268	May 18	17:04:53	6671	15687	N	-a	1.2028	0.6289	-0.3275	201.4	-	-
68	19	3268	Nov 11	18:18:19	6675	15693	N	-t	-1.3508	0.4262	-0.6666	197.0	-	-
57	21	3269	May 08	09:48:19	6680	15699	P	-a	0.4960	1.9259	0.9694	302.9	185.5	-
44	09	3269	Oct 31	18:59:43	6684	15705	P	-t	-0.6211	1.7504	0.6866	335.7	180.4	-
34	-04	3270	Apr 28	00:20:35	6689	15711	T-	p-	-0.2267	2.4413	1.4427	333.2	213.6	88.6
30	-04	3270	Oct 21	02:11:21	6693	15717	T+	p-	0.1375	2.6084	1.6028	338.8	218.6	97.2
64	26	3272	Mar 06	15:32:12	6706	15734	N	-t	1.2659	0.5841	-0.5130	226.6	-	-
63	26	3272	Aug 31	01:03:41	6710	15740	P	-a	-0.9974	1.0087	0.0467	248.5	47.6	-
51	17	3273	Feb 23	17:41:23	6715	15746	P	-t	0.5393	1.8970	0.8401	336.0	190.7	-
41	03	3273	Aug 20	13:35:55	6719	15752	T-	p-	-0.2663	2.3749	1.3637	342.0	216.6	84.7
28	-07	3274	Feb 13	03:01:37	6724	15758	T-	p-	-0.1806	2.5273	1.5259	330.5	212.8	92.1
29	-07	3274	Aug 09	19:02:22	6728	15764	P	t-	0.5177	1.9377	0.8790	348.8	199.9	-
71	33	3275	Jun 30	05:18:43	6737	15775	Ne	-t	-1.5457	0.0495	-1.0054	67.7	-	-
60	22	3275	Dec 24	21:21:38	6741	15781	N	-a	1.2128	0.6364	-0.3712	211.2	-	-
58	24	3276	Jun 18	11:40:21	6746	15787	P	-t	-0.7321	1.5171	0.5121	303.4	153.8	-
49	11	3276	Dec 13	05:43:30	6750	15793	P	-a	0.5563	1.8691	0.8060	337.9	189.3	-

35	-01	3277	Jun 08	00:56:30	6755	15799	T+	pp	0.0447	2.7551	1.7962	322.9	213.7	99.6
28	-09	3277	Dec 02	07:08:11	6759	15805	T-	pp	-0.1412	2.6476	1.5508	376.2	232.8	99.7
26	-11	3278	May 28	17:42:21	6764	15811	P	a-	0.7636	1.4309	0.4825	276.3	141.4	-
66	29	3279	Apr 18	22:33:47	6772	15822	N	-a	-1.1615	0.7353	-0.2819	230.1	-	-
55	25	3279	Oct 12	00:47:02	6776	15828	N	-a	1.2175	0.6177	-0.3701	207.2	-	-
56	18	3280	Apr 07	04:32:29	6781	15834	P	-t	-0.4741	2.0253	0.9514	351.7	203.8	-
42	07	3280	Sep 30	16:02:18	6785	15840	T	-a	0.4669	1.9766	1.0255	303.6	188.4	23.7
30	-05	3281	Mar 27	04:34:26	6790	15846	T+	pp	0.2316	2.4813	1.3856	373.8	228.9	89.8
33	-06	3281	Sep 20	08:48:45	6794	15852	T-	p-	-0.2537	2.3712	1.4135	317.7	206.7	84.7
59	25	3283	Feb 04	01:30:21	6807	15869	N	-a	-1.1878	0.6728	-0.3161	211.2	-	-
64	24	3283	Jul 31	15:04:21	6812	15875	P	-t	0.9559	1.1373	0.0712	296.5	65.1	-
50	15	3284	Jan 24	16:50:34	6816	15881	P	-a	-0.5091	1.9089	0.9385	301.8	182.4	-
37	02	3284	Jul 19	15:40:08	6821	15887	T+	pp	0.1960	2.5291	1.4680	367.6	229.9	95.6
37	-10	3285	Jan 13	07:43:11	6825	15893	T+	p-	0.1619	2.5596	1.5620	329.2	212.6	93.4
27	-08	3285	Jul 08	20:34:45	6830	15899	P	h-	-0.5745	1.8115	0.7963	324.6	185.3	-
67	32	3286	May 30	00:52:32	6838	15910	N	-a	1.2567	0.5280	-0.4247	185.9	-	-
69	20	3286	Nov 23	01:49:05	6843	15916	N	-t	-1.3851	0.3647	-0.7311	183.4	-	-
58	22	3287	May 19	17:43:43	6847	15922	P	-a	0.5484	1.8290	0.8738	299.3	179.3	-
45	10	3287	Nov 12	02:35:10	6852	15928	P	-t	-0.6598	1.6797	0.6153	331.0	172.4	-
35	-03	3288	May 08	08:08:58	6856	15934	T-	pp	-0.1802	2.5266	1.5279	335.6	216.3	93.7
31	-03	3288	Oct 31	10:03:42	6861	15940	T+	p-	0.0944	2.6875	1.6821	338.5	219.0	99.3
65	27	3290	Mar 17	23:20:55	6874	15957	N	-t	1.2866	0.5443	-0.5493	219.2	-	-
64	27	3290	Sep 11	08:34:39	6878	15963	N	-a	-1.0661	0.8846	-0.0815	236.6	-	-
52	18	3291	Mar 07	01:54:27	6883	15969	P	-t	0.5523	1.8708	0.8186	333.4	188.5	-
42	04	3291	Aug 31	20:40:09	6887	15975	T	-a	-0.3425	2.2375	1.2214	340.3	211.7	69.6
29	-06	3292	Feb 24	11:39:09	6892	15981	T-	p-	-0.1705	2.5440	1.5463	329.6	212.8	92.9
30	-06	3292	Aug 20	01:38:07	6897	15987	T	t-	0.4345	2.0918	1.0300	356.0	210.8	28.3
61	23	3294	Jan 04	05:55:01	6909	16004	N	-a	1.2258	0.6146	-0.3970	208.7	-	-

59	25	3294	Jun 29	18:50:47	6914	16010	P	-t	-0.8018	1.3868	0.3866	293.3	135.8	-
50	12	3294	Dec 24	13:51:04	6919	16016	P	-a	0.5730	1.8408	0.7730	337.8	186.9	-
36	00	3295	Jun 19	08:30:20	6923	16022	T-	pp	-0.0221	2.7947	1.8395	322.0	213.5	99.9
29	-08	3295	Dec 13	14:54:03	6928	16028	T-	pp	-0.1182	2.6915	1.5916	377.2	233.6	101.3
27	-10	3296	Jun 08	01:26:16	6932	16034	P	a-	0.7029	1.5415	0.5945	283.1	154.3	-
67	30	3297	Apr 29	06:21:41	6941	16045	N	-a	-1.2069	0.6521	-0.3653	219.2	-	-
56	26	3297	Oct 22	08:38:58	6945	16051	N	-a	1.2588	0.5420	-0.4458	194.9	-	-
57	19	3298	Apr 18	12:05:38	6950	16057	P	-t	-0.5139	1.9517	0.8788	349.3	198.9	-
43	08	3298	Oct 11	23:57:33	6954	16063	P	-a	0.5182	1.8834	0.9304	300.0	182.4	-
31	-04	3299	Apr 07	12:07:28	6959	16069	T+	pp	0.1982	2.5407	1.4486	374.3	230.6	94.4
34	-05	3299	Oct 01	16:33:12	6964	16075	T-	p-	-0.1964	2.4784	1.5165	320.4	209.6	91.0

34TH CENTURY CE

In the 34th century CE the total number of lunar eclipses will be --- lunar eclipses: --- penumbral lunar eclipses, --- partial lunar eclipses, --- total lunar eclipses (--- central total lunar eclipses, --- non-central total lunar eclipses).

PHASE														
DURATIONS														
SEQ.	REL.	CALENDAR	TD	ΔT	LUNA	ECL.	QSE	GAMMA	PEN.	UM.	PEN.	PAR.	TOTAL	
NUM.	NUM.	DATE	OF	s	NUM	TYPE			MAG.	MAG.	m	m	m	
GREATEST														
ECLIPSE														
60	26	3301	Feb 15	10:15:28	6977	16092	N	-a	-1.1916	0.6645	-0.3217	209.5	-	-

65	25	3301	Aug 11	21:34:51	6981	16098	N	-t	1.0414	0.9812	-0.0866	280.4	-	-
51	16	3302	Feb 05	01:41:40	6986	16104	P	-a	-0.5154	1.8974	0.9269	301.4	181.7	-
38	03	3302	Jul 31	22:13:51	6990	16110	T	pp	0.2811	2.3720	1.3129	363.7	224.6	83.0
38	-09	3303	Jan 25	16:25:48	6995	16116	T+	p-	0.1564	2.5711	1.5708	330.3	213.2	93.9
28	-07	3303	Jul 21	03:33:44	6999	16122	P	a-	-0.4940	1.9571	0.9459	329.6	196.1	-
68	33	3304	Jun 10	08:34:38	7008	16133	N	-a	1.3152	0.4192	-0.5303	167.1	-	-
70	21	3304	Dec 04	09:27:53	7012	16139	N	-t	-1.4129	0.3149	-0.7833	171.3	-	-
59	23	3305	May 31	01:31:45	7017	16145	P	-a	0.6067	1.7216	0.7674	294.7	171.4	-
46	11	3305	Nov 23	10:20:42	7022	16151	P	-t	-0.6906	1.6233	0.5586	326.8	165.4	-
36	-02	3306	May 20	15:48:20	7026	16157	T-	pp	-0.1268	2.6248	1.6257	337.8	218.7	98.0
32	-02	3306	Nov 12	18:04:45	7031	16163	T+	pp	0.0578	2.7545	1.7492	337.8	218.9	100.3
66	28	3308	Mar 29	07:01:10	7044	16180	N	-t	1.3141	0.4918	-0.5977	208.9	-	-
65	28	3308	Sep 22	16:10:01	7048	16186	N	-a	-1.1306	0.7687	-0.2020	224.0	-	-
53	19	3309	Mar 18	10:02:32	7053	16192	P	-t	0.5700	1.8358	0.7888	330.4	185.5	-
43	05	3309	Sep 12	03:47:05	7058	16198	T	-a	-0.4155	2.1063	1.0850	337.9	205.6	45.2
30	-05	3310	Mar 07	20:13:54	7062	16204	T-	p-	-0.1576	2.5656	1.5720	328.7	212.8	93.9
31	-05	3310	Sep 01	08:15:34	7067	16210	T	t-	0.3531	2.2428	1.1778	362.0	219.3	65.8
62	24	3312	Jan 16	14:32:07	7080	16227	N	-a	1.2353	0.5989	-0.4163	207.1	-	-
60	26	3312	Jul 11	01:59:31	7085	16233	P	-t	-0.8738	1.2525	0.2567	281.8	112.4	-
51	13	3313	Jan 04	22:02:19	7089	16239	P	-a	0.5860	1.8188	0.7470	337.9	185.0	-
37	01	3313	Jun 30	16:02:34	7094	16245	T-	pp	-0.0910	2.6668	1.7148	320.6	212.5	98.2
30	-07	3313	Dec 24	22:45:35	7098	16251	T-	pp	-0.0996	2.7269	1.6245	378.0	234.1	102.4
28	-09	3314	Jun 20	09:06:38	7103	16257	P	a-	0.6395	1.6574	0.7113	289.6	165.8	-
68	31	3315	May 11	14:01:42	7112	16268	N	-a	-1.2578	0.5588	-0.4589	205.4	-	-
57	27	3315	Nov 03	16:39:19	7116	16274	N	-a	1.2938	0.4778	-0.5101	183.7	-	-
58	20	3316	Apr 29	19:27:58	7121	16280	P	-t	-0.5619	1.8632	0.7912	345.8	192.1	-
44	09	3316	Oct 23	08:01:12	7125	16286	P	-a	0.5627	1.8028	0.8478	296.6	176.5	-
32	-03	3317	Apr 18	19:31:02	7130	16292	T+	pp	0.1570	2.6145	1.5262	374.7	232.4	98.8

35	-04	3317	Oct 13	00:24:15	7135	16298	T-	pp	-0.1449	2.5751	1.6087	322.6	211.7	95.1
61	27	3319	Feb 26	18:57:38	7148	16315	N	-a	-1.1983	0.6507	-0.3324	207.1	-	-
66	26	3319	Aug 23	04:05:10	7152	16321	N	-t	1.1263	0.8265	-0.2433	261.9	-	-
52	17	3320	Feb 16	10:31:49	7157	16327	P	-a	-0.5224	1.8843	0.9141	301.0	181.0	-
39	04	3320	Aug 11	04:48:36	7162	16333	T	-t	0.3655	2.2163	1.1588	358.6	217.4	62.3
39	-08	3321	Feb 05	01:08:10	7166	16339	T+	p-	0.1514	2.5814	1.5789	331.4	213.9	94.4
29	-06	3321	Jul 31	10:34:10	7171	16345	T	a-	-0.4138	2.1025	1.0948	333.5	204.5	47.3
69	34	3322	Jun 21	16:12:22	7180	16356	N	-a	1.3776	0.3032	-0.6433	143.5	-	-
71	22	3322	Dec 15	17:13:57	7184	16362	N	-t	-1.4349	0.2757	-0.8247	160.9	-	-
60	24	3323	Jun 11	09:13:51	7189	16368	P	-a	0.6696	1.6060	0.6523	289.2	161.3	-
47	12	3323	Dec 04	18:15:16	7193	16374	P	-t	-0.7150	1.5786	0.5138	323.2	159.4	-
37	-01	3324	May 30	23:19:14	7198	16380	T-	pp	-0.0670	2.7348	1.7350	339.8	220.7	101.1
33	-01	3324	Nov 23	02:15:05	7203	16386	T+	pp	0.0281	2.8090	1.8038	337.0	218.6	100.6
67	29	3326	Apr 09	14:36:01	7216	16403	N	-t	1.3461	0.4308	-0.6543	196.2	-	-
66	29	3326	Oct 03	23:50:32	7221	16409	N	-a	-1.1901	0.6618	-0.3138	210.8	-	-
54	20	3327	Mar 29	18:05:22	7225	16415	P	-t	0.5928	1.7911	0.7497	326.7	181.6	-
44	06	3327	Sep 23	10:57:34	7230	16421	P	-a	-0.4846	1.9822	0.9553	334.9	198.2	-
31	-04	3328	Mar 18	04:43:27	7235	16427	T-	p-	-0.1397	2.5962	1.6070	327.9	213.1	95.2
32	-04	3328	Sep 11	14:58:10	7239	16433	T	pp	0.2760	2.3862	1.3176	366.7	225.6	83.7
63	25	3330	Jan 26	23:09:09	7253	16450	N	-a	1.2449	0.5827	-0.4354	205.3	-	-
61	27	3330	Jul 22	09:07:56	7257	16456	P	-h	-0.9468	1.1166	0.1246	268.9	79.5	-
52	14	3331	Jan 16	06:15:54	7262	16462	P	-a	0.5968	1.8008	0.7256	338.1	183.5	-
38	02	3331	Jul 11	23:31:14	7267	16468	T-	-p	-0.1635	2.5324	1.5829	318.6	210.3	94.0
31	-06	3332	Jan 05	06:42:42	7271	16474	T-	pp	-0.0856	2.7534	1.6493	378.5	234.4	103.0
29	-08	3332	Jun 30	16:40:18	7276	16480	P	a-	0.5705	1.7838	0.8380	296.0	176.4	-
69	32	3333	May 21	21:31:56	7285	16491	N	-a	-1.3159	0.4525	-0.5657	187.4	-	-
58	28	3333	Nov 14	00:47:59	7289	16497	N	-a	1.3229	0.4245	-0.5637	173.5	-	-
59	21	3334	May 11	02:41:56	7294	16503	P	-t	-0.6163	1.7628	0.6920	341.1	183.1	-

45	10	3334	Nov 03	16:11:39	7299	16509	P	-a	0.6019	1.7320	0.7747	293.3	170.7	-
33	-02	3335	Apr 30	02:47:04	7303	16515	T+	pp	0.1091	2.7002	1.6161	374.8	233.9	102.5
36	-03	3335	Oct 24	08:20:48	7308	16521	T-	pp	-0.0984	2.6628	1.6916	324.5	213.1	97.6
62	28	3337	Mar 09	03:36:09	7321	16538	N	-a	-1.2083	0.6304	-0.3491	203.7	-	-
67	27	3337	Sep 02	10:40:09	7326	16544	N	-t	1.2068	0.6800	-0.3922	241.4	-	-
53	18	3338	Feb 26	19:19:24	7331	16550	P	-a	-0.5315	1.8672	0.8977	300.4	180.0	-
40	05	3338	Aug 22	11:26:48	7335	16556	T	-t	0.4477	2.0649	1.0086	352.6	208.4	15.2
40	-07	3339	Feb 16	09:48:24	7340	16562	T+	p-	0.1450	2.5939	1.5898	332.6	214.5	95.0
30	-05	3339	Aug 11	17:37:05	7345	16568	T	a-	-0.3348	2.2461	1.2413	336.4	210.9	71.7
70	35	3340	Jul 01	23:46:18	7353	16579	N	-a	1.4433	0.1816	-0.7628	112.1	-	-
72	23	3340	Dec 26	01:06:24	7358	16585	N	-t	-1.4519	0.2452	-0.8566	152.1	-	-
61	25	3341	Jun 21	16:50:35	7363	16591	P	-a	0.7367	1.4828	0.5290	282.6	148.4	-
48	13	3341	Dec 15	02:16:52	7367	16597	P	-t	-0.7343	1.5430	0.4787	320.0	154.3	-
38	00	3342	Jun 11	06:42:41	7372	16603	T-	pp	-0.0018	2.8552	1.8542	341.3	221.8	102.4
34	00	3342	Dec 04	10:33:36	7377	16609	T+	pp	0.0047	2.8518	1.8470	336.1	218.0	100.5
68	30	3344	Apr 19	22:01:49	7390	16626	N	-t	1.3853	0.3565	-0.7238	179.2	-	-
67	30	3344	Oct 14	07:37:24	7395	16632	N	-a	-1.2440	0.5655	-0.4153	197.5	-	-
55	21	3345	Apr 09	02:01:21	7400	16638	P	-t	0.6219	1.7347	0.6992	322.4	176.3	-
45	07	3345	Oct 03	18:13:47	7404	16644	P	-a	-0.5482	1.8685	0.8357	331.6	190.0	-
32	-03	3346	Mar 29	13:08:49	7409	16650	T-	p-	-0.1177	2.6341	1.6496	327.1	213.3	96.5
33	-03	3346	Sep 22	21:43:53	7414	16656	T+	pp	0.2016	2.5246	1.4521	370.3	230.2	94.7
64	26	3348	Feb 07	07:46:09	7427	16673	N	-a	1.2540	0.5674	-0.4532	203.6	-	-
62	28	3348	Aug 01	16:17:22	7432	16679	N	-h	-1.0196	0.9814	-0.0073	254.8	-	-
53	15	3349	Jan 26	14:30:35	7437	16685	P	-h	0.6061	1.7851	0.7071	338.3	182.1	-
39	03	3349	Jul 22	07:00:15	7441	16691	T-	-p	-0.2360	2.3983	1.4509	316.0	207.1	87.0
32	-05	3350	Jan 15	14:41:33	7446	16697	T-	pp	-0.0730	2.7771	1.6718	378.9	234.7	103.5
30	-07	3350	Jul 12	00:12:40	7451	16703	P	a-	0.5006	1.9122	0.9662	301.7	185.5	-
70	33	3351	Jun 02	04:53:36	7460	16714	N	-h	-1.3800	0.3353	-0.6837	163.7	-	-

59	29	3351	Nov 25	09:05:07	7464	16720	N	-a	1.3461	0.3821	-0.6062	164.9	-	-
60	22	3352	May 21	09:46:04	7469	16726	P	-t	-0.6784	1.6484	0.5786	335.1	171.0	-
46	11	3352	Nov 14	00:30:18	7474	16732	P	-a	0.6345	1.6734	0.7137	290.5	165.5	-
34	-01	3353	May 10	09:54:12	7478	16738	T+	pp	0.0535	2.8001	1.7201	374.7	234.9	105.1
37	-02	3353	Nov 03	16:25:26	7483	16744	T-	pp	-0.0589	2.7378	1.7617	326.1	214.1	99.0
63	29	3355	Mar 20	12:09:50	7497	16761	N	-a	-1.2229	0.6018	-0.3739	199.1	-	-
68	28	3355	Sep 13	17:18:40	7501	16767	N	-t	1.2836	0.5404	-0.5345	218.4	-	-
54	19	3356	Mar 09	04:02:02	7506	16773	P	-a	-0.5448	1.8423	0.8739	299.5	178.4	-
41	06	3356	Sep 01	18:09:47	7511	16779	P	-t	0.5263	1.9202	0.8647	345.7	197.7	-
41	-06	3357	Feb 26	18:25:36	7516	16785	T+	pp	0.1368	2.6097	1.6042	333.7	215.3	95.8
31	-04	3357	Aug 22	00:43:39	7520	16791	T-	p-	-0.2576	2.3864	1.3841	338.3	215.5	85.8
73	24	3359	Jan 06	09:04:32	7534	16808	N	-t	-1.4644	0.2227	-0.8800	145.2	-	-
62	26	3359	Jul 03	00:21:44	7539	16814	P	-a	0.8080	1.3522	0.3979	274.6	131.5	-
49	14	3359	Dec 26	10:26:35	7543	16820	P	-t	-0.7476	1.5182	0.4547	317.5	150.5	-
71	36	3358	Jul 13	07:18:17	7529	16802	Ne	-a	1.5107	0.0570	-0.8857	63.5	-	-
39	01	3360	Jun 21	13:59:42	7548	16826	T+	pp	0.0677	2.7350	1.7325	342.3	222.0	101.6
35	01	3360	Dec 14	18:59:27	7553	16832	T-	pp	-0.0133	2.8358	1.8315	335.1	217.5	100.3
69	31	3362	May 01	05:21:40	7567	16849	N	-t	1.4295	0.2728	-0.8025	157.5	-	-
68	31	3362	Oct 25	15:29:43	7571	16855	N	-a	-1.2929	0.4787	-0.5076	183.9	-	-
56	22	3363	Apr 20	09:51:38	7576	16861	P	-t	0.6565	1.6681	0.6388	317.3	169.8	-
46	08	3363	Oct 15	01:35:36	7581	16867	P	-h	-0.6064	1.7648	0.7260	328.0	181.0	-
33	-02	3364	Apr 08	21:26:05	7586	16873	T-	p-	-0.0884	2.6854	1.7058	326.4	213.6	97.9
34	-02	3364	Oct 03	04:37:12	7590	16879	T+	pp	0.1336	2.6513	1.5748	373.0	233.1	101.1
65	27	3366	Feb 17	16:19:28	7604	16896	N	-a	1.2656	0.5471	-0.4755	200.9	-	-
63	29	3366	Aug 12	23:29:11	7609	16902	N	-h	-1.0912	0.8486	-0.1373	239.3	-	-
54	16	3367	Feb 06	22:44:04	7613	16908	P	-h	0.6159	1.7681	0.6881	338.4	180.6	-
40	04	3367	Aug 02	14:27:18	7618	16914	T	-p	-0.3107	2.2607	1.3146	312.6	202.6	76.3
33	-04	3368	Jan 26	22:43:39	7623	16920	T-	pp	-0.0629	2.7959	1.6903	379.0	234.8	103.9

31	-06	3368	Jul 22	07:41:23	7628	16926	T	a-	0.4275	2.0466	1.0997	307.0	193.4	46.0
71	34	3369	Jun 12	12:07:11	7637	16937	N	-h	-1.4497	0.2079	-0.8122	130.9	-	-
60	30	3369	Dec 05	17:30:31	7641	16943	N	-a	1.3635	0.3501	-0.6383	158.0	-	-
61	23	3370	Jun 01	16:42:21	7646	16949	P	-t	-0.7461	1.5236	0.4548	327.4	154.9	-
47	12	3370	Nov 25	08:55:31	7651	16955	P	-a	0.6617	1.6246	0.6625	288.1	160.7	-
35	00	3371	May 21	16:54:55	7656	16961	T-	pp	-0.0078	2.8819	1.8061	373.9	235.1	105.9
38	-01	3371	Nov 15	00:36:18	7661	16967	T-	pp	-0.0253	2.8019	1.8208	327.5	214.7	99.6
64	30	3373	Mar 30	20:38:34	7674	16984	N	-a	-1.2417	0.5652	-0.4066	193.2	-	-
69	29	3373	Sep 24	00:03:06	7679	16990	N	-t	1.3552	0.4104	-0.6673	192.8	-	-
55	20	3374	Mar 20	12:39:48	7684	16996	P	-a	-0.5620	1.8102	0.8429	298.3	176.4	-
42	07	3374	Sep 13	00:59:06	7689	17002	P	-t	0.6003	1.7841	0.7291	338.2	185.5	-
42	-05	3375	Mar 10	02:57:11	7693	17008	T+	pp	0.1243	2.6330	1.6267	334.9	216.2	96.8
32	-03	3375	Sep 02	07:54:59	7698	17014	T-	p-	-0.1835	2.5214	1.5211	339.3	218.5	94.3
74	25	3377	Jan 16	17:04:50	7712	17031	N	-t	-1.4750	0.2032	-0.8995	138.8	-	-
63	27	3377	Jul 13	07:50:13	7717	17037	P	-a	0.8809	1.2190	0.2636	265.4	109.4	-
50	15	3378	Jan 05	18:41:42	7722	17043	P	-t	-0.7567	1.5009	0.4387	315.4	147.8	-
40	02	3378	Jul 02	21:10:03	7726	17049	T+	pp	0.1420	2.5996	1.5952	342.5	221.0	98.0
36	02	3378	Dec 26	03:31:55	7731	17055	T-	pp	-0.0262	2.8116	1.8082	334.1	216.9	99.9
70	32	3380	May 11	12:31:54	7745	17072	N	-t	1.4816	0.1747	-0.8955	126.8	-	-
69	32	3380	Nov 04	23:29:42	7750	17078	N	-a	-1.3350	0.4043	-0.5876	170.9	-	-
57	23	3381	Apr 30	17:35:11	7754	17084	P	-t	0.6974	1.5899	0.5668	311.2	161.3	-
47	09	3381	Oct 25	09:03:00	7759	17090	P	-h	-0.6592	1.6710	0.6262	324.4	171.4	-
34	-01	3382	Apr 20	05:38:24	7764	17096	T-	pp	-0.0545	2.7452	1.7705	325.5	213.9	99.0
35	-01	3382	Oct 14	11:36:15	7769	17102	T+	pp	0.0706	2.7690	1.6885	374.8	234.8	104.6
66	28	3384	Feb 29	00:50:02	7783	17119	N	-a	1.2790	0.5232	-0.5009	197.6	-	-
64	30	3384	Aug 23	06:45:12	7788	17125	N	-h	-1.1600	0.7211	-0.2626	222.6	-	-
55	17	3385	Feb 17	06:54:34	7792	17131	P	-h	0.6278	1.7470	0.6655	338.1	178.7	-
41	05	3385	Aug 12	21:57:43	7797	17137	T	-p	-0.3830	2.1277	1.1824	308.7	197.0	60.6

34	-03	3386	Feb 06	06:45:10	7802	17143	T-	pp	-0.0519	2.8158	1.7106	379.0	235.0	104.3
32	-05	3386	Aug 02	15:09:33	7807	17149	T	p-	0.3542	2.1819	1.2335	311.6	199.9	67.7
72	35	3387	Jun 23	19:14:11	7816	17160	Ne	-h	-1.5239	0.0726	-0.9490	78.6	-	-
61	31	3387	Dec 17	02:02:35	7821	17166	N	-a	1.3762	0.3268	-0.6615	152.6	-	-
62	24	3388	Jun 11	23:30:02	7826	17172	P	-t	-0.8203	1.3872	0.3190	317.8	132.6	-
48	13	3388	Dec 05	17:28:18	7830	17178	P	-a	0.6831	1.5866	0.6222	286.2	156.7	-
36	01	3389	May 31	23:48:27	7835	17184	T-	pp	-0.0753	2.7559	1.6842	372.5	234.2	104.5
39	00	3389	Nov 25	08:53:37	7840	17190	T+	pp	0.0026	2.8460	1.8601	328.7	215.1	99.8
65	31	3391	Apr 11	04:59:33	7854	17207	N	-a	-1.2676	0.5157	-0.4519	185.0	-	-
70	30	3391	Oct 05	06:54:04	7859	17213	N	-t	1.4213	0.2907	-0.7900	164.2	-	-
56	21	3392	Mar 30	21:10:43	7864	17219	P	-a	-0.5852	1.7669	0.8012	296.6	173.3	-
43	08	3392	Sep 23	07:56:09	7868	17225	P	-t	0.6687	1.6586	0.6038	330.4	171.9	-
43	-04	3393	Mar 20	11:22:40	7873	17231	T+	pp	0.1073	2.6647	1.6577	336.2	217.2	97.9
33	-02	3393	Sep 12	15:12:57	7878	17237	T-	pp	-0.1138	2.6485	1.6497	339.5	220.0	99.2
75	26	3395	Jan 28	01:08:46	7892	17254	N	-t	-1.4830	0.1882	-0.9139	133.7	-	-
64	28	3395	Jul 24	15:15:26	7897	17260	P	-a	0.9559	1.0823	0.1252	254.5	77.0	-
51	16	3396	Jan 17	03:01:26	7902	17266	P	-t	-0.7630	1.4883	0.4280	313.5	145.9	-
41	03	3396	Jul 13	04:15:53	7907	17272	T+	-p	0.2193	2.4590	1.4521	342.0	218.6	91.0
37	03	3397	Jan 05	12:09:22	7911	17278	T-	pp	-0.0357	2.7936	1.7914	333.1	216.3	99.6
71	33	3398	May 22	19:37:21	7925	17295	Ne	-t	1.5377	0.0693	-0.9960	80.3	-	-
70	33	3398	Nov 16	07:35:33	7930	17301	N	-a	-1.3718	0.3396	-0.6578	158.2	-	-
58	24	3399	May 12	01:11:32	7935	17307	P	-t	0.7450	1.4995	0.4825	304.1	150.4	-
48	10	3399	Nov 05	16:37:34	7940	17313	P	-h	-0.7052	1.5896	0.5387	321.0	161.7	-
35	00	3400	May 01	13:42:40	7945	17319	T-	pp	-0.0135	2.8181	1.8481	324.6	213.9	99.6
36	00	3400	Oct 25	18:44:12	7950	17325	T+	pp	0.0151	2.8730	1.7884	376.0	235.4	105.7

35TH CENTURY CE

**In the 35th century CE the total number of lunar eclipses will be --- lunar eclipses:
 --- penumbral lunar eclipses, --- partial lunar eclipses, --- total lunar eclipses
 (--- central total lunar eclipses, --- non-central total lunar eclipses).**

PHASE													DURATIONS	
SEQ.	REL.	CALENDAR	TD	ΔT	LUNA	ECL.	QSE	GAMMA	PEN.	UM.	PEN.	PAR.	TOTAL	
NUM.	NUM.	DATE	OF	s	NUM	TYPE			MAG.	MAG.	m	m	m	
GREATEST														
ECLIPSE														
67	29	3402 Mar 12 09:14:29	7964 17342	N	-a	1.2970 0.4908 -0.5344	192.5	-	-					
65	31	3402 Sep 04 14:04:51	7968 17348	N	-a	-1.2267 0.5980 -0.3840	204.5	-	-					
56	18	3403 Mar 01 15:01:19	7973 17354	P	-t	0.6423 1.7208 0.6387	337.4	176.2	-					
42	06	3403 Aug 25 05:29:08	7978 17360	T	-a	-0.4549 1.9957 1.0505	304.2	190.1	33.1					
35	-02	3404 Feb 18 14:45:15	7983 17366	T-	pp	-0.0397 2.8375 1.7335	378.9	235.1	104.6					
33	-04	3404 Aug 13 22:37:05	7988 17372	T	p-	0.2807 2.3179 1.3674	315.5	205.1	81.2					
62	32	3405 Dec 28 10:40:14	8002 17389	N	-a	1.3851 0.3102 -0.6776	148.6	-	-					
63	25	3406 Jun 24 06:12:11	8007 17395	P	-t	-0.8983 1.2437 0.1760	306.2	100.8	-					
49	14	3406 Dec 18 02:06:57	8012 17401	P	-a	0.6996 1.5574 0.5908	284.7	153.5	-					
37	02	3407 Jun 13 06:35:49	8017 17407	T-	pp	-0.1484 2.6199 1.5521	370.3	232.0	100.1					
40	01	3407 Dec 07 17:17:33	8022 17413	T+	pp	0.0245 2.8083 1.8175	329.9	215.3	99.6					
66	32	3409 Apr 22 13:14:36	8036 17430	N	-a	-1.2986 0.4567 -0.5068	174.7	-	-					
71	31	3409 Oct 16 13:53:32	8040 17436	N	-t	1.4803 0.1839 -0.8998	132.0	-	-					
57	22	3410 Apr 12 05:35:20	8045 17442	P	-a	-0.6132 1.7148 0.7505	294.3	169.4	-					
44	09	3410 Oct 05 15:00:33	8050 17448	P	-t	0.7315 1.5434 0.4886	322.3	157.1	-					
44	-03	3411 Apr 01 19:40:38	8055 17454	T+	pp	0.0847 2.7062 1.6989	337.5	218.2	99.2					

34	-01	3411	Sep 24	22:37:54	8060	17460	T-	pp	-0.0494	2.7661	1.7684	339.0	220.5	101.4
76	27	3413	Feb 08	09:11:45	8074	17477	N	-t	-1.4915	0.1720	-0.9287	127.8	-	-
65	29	3413	Aug 04	22:39:35	8079	17483	N	-a	1.0311	0.9455	-0.0140	242.1	-	-
52	17	3414	Jan 28	11:22:34	8084	17489	P	-h	-0.7686	1.4767	0.4190	311.7	144.2	-
42	04	3414	Jul 25	11:17:45	8089	17495	T	-a	0.2988	2.3146	1.3048	340.5	214.5	79.2
38	04	3415	Jan 17	20:50:42	8094	17501	T-	pp	-0.0423	2.7806	1.7800	332.1	215.8	99.3
71	34	3416	Nov 27	15:48:29	8113	17524	N	-a	-1.4021	0.2867	-0.7162	146.6	-	-
59	25	3417	May 23	08:42:17	8118	17530	P	-t	0.7976	1.3999	0.3890	295.9	136.6	-
49	11	3417	Nov 17	00:19:20	8123	17536	P	-h	-0.7442	1.5210	0.4642	317.9	152.3	-
36	01	3418	May 12	21:41:20	8128	17542	T+	pp	0.0327	2.7804	1.8151	323.5	213.5	99.5
37	01	3418	Nov 06	01:58:59	8133	17548	T-	pp	-0.0347	2.8390	1.7504	376.7	235.3	105.4
68	30	3420	Mar 22	17:32:23	8147	17565	N	-a	1.3197	0.4495	-0.5764	185.6	-	-
66	32	3420	Sep 14	21:31:16	8151	17571	N	-a	-1.2884	0.4841	-0.4967	185.5	-	-
57	19	3421	Mar 11	23:02:35	8156	17577	P	-t	0.6609	1.6869	0.6045	336.2	172.8	-
43	07	3421	Sep 04	13:04:44	8161	17583	P	-a	-0.5234	1.8701	0.9246	299.2	182.3	-
36	-01	3422	Feb 28	22:41:37	8166	17589	T-	pp	-0.0244	2.8648	1.7626	378.6	235.2	104.9
34	-03	3422	Aug 25	06:06:28	8171	17595	T+	p-	0.2089	2.4509	1.4978	318.7	209.0	90.1
63	33	3424	Jan 08	19:22:35	8185	17612	N	-a	1.3910	0.2990	-0.6881	145.7	-	-
64	26	3424	Jul 04	12:48:41	8190	17618	P	-t	-0.9805	1.0929	0.0253	292.2	39.1	-
50	15	3424	Dec 28	10:50:20	8195	17624	P	-a	0.7125	1.5345	0.5661	283.6	150.8	-
38	03	3425	Jun 23	13:18:38	8200	17630	T-	pp	-0.2257	2.4761	1.4120	367.1	228.3	91.7
41	02	3425	Dec 18	01:47:27	8205	17636	T+	pp	0.0415	2.7794	1.7843	331.0	215.6	99.4
67	33	3427	May 03	21:21:44	8219	17653	N	-a	-1.3365	0.3851	-0.5743	161.2	-	-
72	32	3427	Oct 27	21:01:22	8224	17659	N	-t	1.5322	0.0902	-0.9966	93.3	-	-
58	23	3428	Apr 22	13:50:57	8229	17665	P	-a	-0.6486	1.6491	0.6863	291.3	164.0	-
45	10	3428	Oct 15	22:14:31	8234	17671	P	-t	0.7870	1.4417	0.3866	314.5	141.6	-
45	-02	3429	Apr 12	03:51:13	8239	17677	T+	pp	0.0567	2.7577	1.7502	338.7	219.3	100.4
35	00	3429	Oct 05	06:09:30	8244	17683	T+	pp	0.0103	2.8375	1.8405	338.0	220.1	101.7

77	28	3431	Feb 19	17:14:22	8258	17700	N	-t	-1.5006	0.1542	-0.9444	121.0	-	-
66	30	3431	Aug 16	06:02:30	8263	17706	N	-a	1.1067	0.8082	-0.1542	227.8	-	-
53	18	3432	Feb 08	19:45:35	8268	17712	P	-h	-0.7735	1.4662	0.4117	309.8	142.7	-
43	05	3432	Aug 04	18:18:17	8273	17718	T	-a	0.3785	2.1702	1.1569	338.0	208.8	59.9
39	05	3433	Jan 28	05:33:07	8278	17724	T-	pp	-0.0486	2.7680	1.7695	331.1	215.3	99.0
72	35	3434	Dec 09	00:06:51	8297	17747	N	-a	-1.4275	0.2426	-0.7655	135.9	-	-
60	26	3435	Jun 03	16:07:24	8302	17753	P	-t	0.8554	1.2909	0.2857	286.4	118.5	-
50	12	3435	Nov 28	08:08:01	8307	17759	P	-h	-0.7771	1.4635	0.4011	315.2	143.3	-
37	02	3436	May 23	05:32:10	8312	17765	T+	pp	0.0860	2.6804	1.7195	322.0	212.6	98.1
38	02	3436	Nov 16	09:23:26	8317	17771	T-	pp	-0.0764	2.7643	1.6720	377.0	234.8	104.0
69	31	3438	Apr 03	01:42:09	8332	17788	N	-a	1.3483	0.3972	-0.6291	175.8	-	-
67	33	3438	Sep 26	05:03:44	8337	17794	N	-a	-1.3459	0.3783	-0.6019	165.1	-	-
58	20	3439	Mar 23	06:56:03	8342	17800	P	-t	0.6851	1.6422	0.5602	334.1	167.9	-
44	08	3439	Sep 15	20:44:03	8347	17806	P	-a	-0.5889	1.7504	0.8038	293.8	173.4	-
37	00	3440	Mar 11	06:33:59	8352	17812	T-	pp	-0.0057	2.8978	1.7983	378.1	235.2	105.1
35	-02	3440	Sep 04	13:38:02	8357	17818	T+	pp	0.1396	2.5799	1.6235	321.3	211.8	95.7
64	34	3442	Jan 19	04:08:54	8371	17835	N	-a	1.3946	0.2919	-0.6940	143.7	-	-
65	27	3442	Jul 15	19:20:33	8376	17841	N	-t	-1.0656	0.9369	-0.1309	275.3	-	-
51	16	3443	Jan 08	19:38:17	8381	17847	P	-a	0.7217	1.5185	0.5485	282.9	148.9	-
39	04	3443	Jul 04	19:57:48	8386	17853	T	pp	-0.3067	2.3258	1.2651	362.7	222.7	77.8
42	03	3443	Dec 29	10:21:37	8391	17859	T+	-p	0.0541	2.7584	1.7591	332.2	215.8	99.2
68	34	3445	May 14	05:23:22	8405	17876	N	-a	-1.3790	0.3053	-0.6504	144.3	-	-
73	33	3445	Nov 07	04:16:35	8410	17882	Ne	-t	1.5780	0.0076	-1.0821	27.3	-	-
59	24	3446	May 03	21:59:51	8415	17888	P	-a	-0.6893	1.5738	0.6123	287.5	157.0	-
46	11	3446	Oct 27	05:37:16	8420	17894	P	-t	0.8359	1.3521	0.2967	306.9	125.4	-
46	-01	3447	Apr 23	11:51:33	8425	17900	T+	pp	0.0209	2.8235	1.8158	340.0	220.3	101.4
36	01	3447	Oct 16	13:50:07	8430	17906	T+	pp	0.0633	2.7401	1.7435	336.7	219.0	100.5
78	29	3449	Mar 02	01:12:08	8445	17923	N	-t	-1.5136	0.1289	-0.9668	110.6	-	-

67	31	3449	Aug 26	13:27:25	8450	17929	N	-a	1.1798	0.6758	-0.2901	211.8	-	-
54	19	3450	Feb 19	04:07:27	8455	17935	P	-h	-0.7797	1.4529	0.4022	307.7	140.8	-
44	06	3450	Aug 16	01:16:05	8460	17941	T	-h	0.4592	2.0240	1.0067	334.6	201.0	13.0
40	06	3451	Feb 08	14:17:04	8465	17947	T-	pp	-0.0539	2.7569	1.7611	330.0	214.8	98.8
73	36	3452	Dec 19	08:31:38	8484	17970	N	-a	-1.4471	0.2092	-0.8038	127.1	-	-
61	27	3453	Jun 13	23:28:23	8489	17976	P	-h	0.9174	1.1745	0.1748	275.5	93.9	-
51	13	3453	Dec 08	16:02:16	8494	17982	P	-h	-0.8046	1.4158	0.3480	313.0	134.9	-
38	03	3454	Jun 03	13:18:34	8499	17988	T+	pp	0.1433	2.5732	1.6164	320.2	211.0	95.2
39	03	3454	Nov 27	16:55:19	8504	17994	T-	pp	-0.1118	2.7010	1.6053	377.0	234.0	102.0
70	32	3456	Apr 13	09:43:56	8519	18011	N	-a	1.3824	0.3348	-0.6919	162.9	-	-
68	34	3456	Oct 06	12:44:12	8524	18017	N	-a	-1.3973	0.2837	-0.6960	143.8	-	-
59	21	3457	Apr 02	14:41:55	8529	18023	P	-t	0.7149	1.5872	0.5059	331.2	161.2	-
45	09	3457	Sep 26	04:29:39	8534	18029	P	-a	-0.6492	1.6405	0.6925	288.3	163.8	-
38	01	3458	Mar 22	14:20:15	8539	18035	T+	pp	0.0183	2.8731	1.7767	377.5	235.1	105.1
36	-01	3458	Sep 15	21:12:14	8544	18041	T+	pp	0.0728	2.7042	1.7441	323.2	213.6	98.9
65	35	3460	Jan 30	12:55:44	8558	18058	N	-a	1.3982	0.2844	-0.6998	141.7	-	-
66	28	3460	Jul 26	01:50:01	8563	18064	N	-t	-1.1519	0.7788	-0.2896	255.3	-	-
52	17	3461	Jan 19	04:28:19	8568	18070	P	-a	0.7295	1.5048	0.5336	282.3	147.3	-
40	05	3461	Jul 15	02:34:43	8574	18076	T	-t	-0.3897	2.1719	1.1143	357.2	215.1	53.7
43	04	3462	Jan 08	18:58:51	8579	18082	T+	-p	0.0638	2.7425	1.7394	333.3	216.1	99.0
69	35	3463	May 25	13:16:14	8593	18099	N	-a	-1.4288	0.2120	-0.7401	121.1	-	-
60	25	3464	May 14	06:00:16	8603	18111	P	-a	-0.7369	1.4857	0.5254	282.7	147.6	-
47	12	3464	Nov 06	13:09:48	8608	18117	P	-t	0.8775	1.2759	0.2202	299.9	109.0	-
47	00	3465	May 03	19:44:01	8613	18123	T-	pp	-0.0208	2.8237	1.8159	341.0	220.9	101.7
37	02	3465	Oct 26	21:39:08	8618	18129	T+	pp	0.1101	2.6541	1.6576	335.1	217.5	98.3
79	30	3467	Mar 13	09:07:31	8633	18146	N	-t	-1.5285	0.0997	-0.9924	97.4	-	-
68	32	3467	Sep 06	20:53:57	8638	18152	N	-a	1.2506	0.5480	-0.4219	193.8	-	-
55	20	3468	Mar 01	12:26:56	8643	18158	P	-h	-0.7883	1.4349	0.3886	305.3	138.3	-

45	07	3468	Aug 26	08:15:44	8648	18164	P	-h	0.5373	1.8830	0.8613	330.3	191.5	-
41	07	3469	Feb 18	22:59:34	8653	18170	T-	pp	-0.0606	2.7432	1.7504	329.0	214.3	98.6
74	37	3470	Dec 30	16:59:57	8673	18193	N	-a	-1.4633	0.1818	-0.8358	119.2	-	-
62	28	3471	Jun 25	06:44:45	8678	18199	P	-h	0.9836	1.0505	0.0558	262.9	53.7	-
52	14	3471	Dec 20	00:02:48	8683	18205	P	-h	-0.8260	1.3789	0.3062	311.3	127.6	-
39	04	3472	Jun 13	20:59:08	8688	18211	T+	-p	0.2057	2.4568	1.5036	317.9	208.6	90.1
40	04	3472	Dec 08	00:34:55	8693	18217	T-	pp	-0.1406	2.6497	1.5510	376.9	233.1	99.8
71	33	3474	Apr 24	17:35:45	8708	18234	N	-a	1.4238	0.2589	-0.7680	144.7	-	-
69	35	3474	Oct 17	20:31:50	8713	18240	N	-a	-1.4436	0.1989	-0.7809	121.0	-	-
60	22	3475	Apr 13	22:18:32	8718	18246	P	-t	0.7516	1.5192	0.4391	327.1	152.1	-
46	10	3475	Oct 07	12:20:53	8723	18252	P	-a	-0.7049	1.5392	0.5893	282.8	153.5	-
39	02	3476	Apr 01	21:59:11	8728	18258	T+	pp	0.0484	2.8158	1.7231	376.5	234.7	104.7
37	00	3476	Sep 26	04:51:09	8733	18264	T+	pp	0.0105	2.8207	1.8563	324.7	214.4	100.1
66	36	3478	Feb 09	21:43:30	8748	18281	N	-a	1.4016	0.2772	-0.7050	139.7	-	-
67	29	3478	Aug 06	08:18:07	8753	18287	N	-t	-1.2387	0.6200	-0.4492	231.6	-	-
53	18	3479	Jan 30	13:19:52	8758	18293	P	-a	0.7358	1.4937	0.5217	281.8	146.0	-
41	06	3479	Jul 26	09:10:34	8763	18299	P	-t	-0.4740	2.0159	0.9609	350.5	205.3	-
44	05	3480	Jan 20	03:38:21	8768	18305	T+	-p	0.0709	2.7310	1.7246	334.4	216.5	98.8
70	36	3481	Jun 04	21:05:01	8783	18322	N	-a	-1.4822	0.1124	-0.8365	88.8	-	-
61	26	3482	May 25	13:53:10	8793	18334	P	-a	-0.7904	1.3872	0.4277	276.8	135.4	-
48	13	3482	Nov 17	20:51:27	8798	18340	P	-t	0.9123	1.2121	0.1563	293.6	92.4	-
48	01	3483	May 15	03:26:19	8804	18346	T-	pp	-0.0704	2.7329	1.7247	341.8	221.1	100.9
38	03	3483	Nov 07	05:37:35	8809	18352	T+	pp	0.1496	2.5817	1.5853	333.4	215.7	95.6
80	31	3485	Mar 23	16:56:04	8823	18369	N	-t	-1.5487	0.0605	-1.0276	75.9	-	-
69	33	3485	Sep 17	04:23:16	8828	18375	N	-a	1.3183	0.4261	-0.5483	173.5	-	-
56	21	3486	Mar 12	20:42:44	8834	18381	P	-h	-0.8005	1.4100	0.3685	302.2	134.8	-
46	08	3486	Sep 06	15:15:54	8839	18387	P	-h	0.6138	1.7451	0.7186	325.0	179.8	-
42	08	3487	Mar 02	07:39:42	8844	18393	T-	pp	-0.0698	2.7245	1.7353	327.8	213.9	98.2

75	38	3489	Jan 10	01:31:43	8864	18416	N	-a	-1.4762	0.1601	-0.8615	112.5	-	-
63	29	3489	Jul 05	13:59:38	8869	18422	N	-h	1.0516	0.9233	-0.0668	248.7	-	-
53	15	3489	Dec 30	08:08:11	8874	18428	P	-h	-0.8428	1.3504	0.2734	310.1	121.5	-
40	05	3490	Jun 25	04:35:13	8879	18434	T+	-p	0.2723	2.3330	1.3831	314.9	205.0	82.2
41	05	3490	Dec 19	08:21:24	8884	18440	T-	pp	-0.1638	2.6084	1.5072	376.7	232.1	97.6
72	34	3492	May 05	01:18:38	8899	18457	N	-a	1.4717	0.1712	-0.8559	119.0	-	-
70	36	3492	Oct 28	04:28:20	8904	18463	N	-a	-1.4834	0.1259	-0.8540	96.7	-	-
61	23	3493	Apr 24	05:46:58	8909	18469	P	-t	0.7946	1.4397	0.3609	321.8	139.8	-
47	11	3493	Oct 17	20:18:09	8914	18475	P	-a	-0.7558	1.4470	0.4948	277.3	142.7	-
40	03	3494	Apr 13	05:31:05	8920	18481	T+	pp	0.0846	2.7474	1.6587	375.3	234.1	103.5
38	01	3494	Oct 07	12:34:58	8925	18487	T-	pp	-0.0473	2.7556	1.7866	325.7	214.6	99.6
67	37	3496	Feb 21	06:28:57	8940	18504	N	-a	1.4074	0.2653	-0.7144	136.5	-	-
68	30	3496	Aug 16	14:47:40	8945	18510	N	-t	-1.3235	0.4649	-0.6055	203.8	-	-
54	19	3497	Feb 09	22:09:48	8950	18516	P	-a	0.7436	1.4796	0.5073	281.2	144.4	-
42	07	3497	Aug 05	15:47:56	8955	18522	P	-t	-0.5576	1.8613	0.8086	342.7	193.1	-
45	06	3498	Jan 30	12:18:42	8960	18528	T+	-p	0.0771	2.7211	1.7119	335.4	216.8	98.8
71	37	3499	Jun 16	04:46:54	8975	18545	Ne	-a	-1.5416	0.0020	-0.9442	11.9	-	-
62	27	3500	Jun 05	21:38:31	8985	18557	P	-a	-0.8499	1.2778	0.3187	269.5	119.0	-
49	14	3500	Nov 29	04:43:06	8991	18563	P	-t	0.9398	1.1617	0.1059	288.2	76.4	-

36TH CENTURY CE

In the 36th century CE the total number of lunar eclipses will be --- lunar eclipses:
 --- penumbral lunar eclipses, --- partial lunar eclipses, --- total lunar eclipses
 (--- central total lunar eclipses, --- non-central total lunar eclipses).

PHASE													
DURATIONS													
SEQ.	REL.	CALENDAR	TD	ΔT	LUNA	ECL.	QSE	GAMMA	PEN.	UM.	PEN.	PAR.	TOTAL
NUM.	NUM.	DATE	OF	s	NUM	TYPE			MAG.	MAG.	m	m	m
GREATEST													
ECLIPSE													
49	02	3501 May 26 11:01:15	8996 18569	T-	pp	-0.1252	2.6326	1.6239	342.2	220.6	98.6		
39	04	3501 Nov 18 13:43:40	9001 18575	T+	-p	0.1834	2.5196	1.5232	331.7	213.9	92.5		
81	32	3503 Apr 05 00:38:36	9016 18592	Ne	-t	-1.5740	0.0120	-1.0716	33.8	-	-		
70	34	3503 Sep 29 11:57:03	9021 18598	N	-a	1.3815	0.3125	-0.6668	150.8	-	-		
57	22	3504 Mar 24 04:54:09	9026 18604	P	-h	-0.8170	1.3771	0.3410	298.6	129.8	-		
47	09	3504 Sep 17 22:20:12	9031 18610	P	-h	0.6859	1.6154	0.5836	319.2	166.2	-		
43	09	3505 Mar 13 16:15:19	9037 18616	T-	pp	-0.0831	2.6981	1.7126	326.7	213.4	97.7		
76	39	3507 Jan 22 10:05:02	9057 18639	N	-a	-1.4871	0.1419	-0.8833	106.5	-	-		
64	30	3507 Jul 17 21:12:30	9062 18645	N	-h	1.1215	0.7931	-0.1929	232.7	-	-		
54	16	3508 Jan 11 16:16:11	9067 18651	P	-h	-0.8565	1.3269	0.2463	309.2	116.0	-		
42	06	3508 Dec 30 16:14:05	9077 18663	T-	pp	-0.1813	2.5772	1.4741	376.5	231.3	95.8		
41	06	3508 Jul 06 12:07:53	9072 18657	T	-p	0.3419	2.2040	1.2567	311.3	200.3	70.2		
73	35	3510 May 17 08:51:32	9092 18680	Ne	-h	1.5264	0.0710	-0.9564	77.5	-	-		
71	37	3510 Nov 09 12:33:10	9097 18686	N	-a	-1.5171	0.0643	-0.9160	69.3	-	-		
62	24	3511 May 06 13:04:06	9103 18692	P	-t	0.8459	1.3447	0.2675	314.8	122.2	-		
41	04	3512 Apr 24 12:55:07	9113 18704	T+	pp	0.1273	2.6669	1.5826	373.7	232.8	101.1		
39	02	3512 Oct 18 20:24:25	9118 18710	T-	-p	-0.0995	2.6622	1.6883	326.4	214.1	97.9		
68	38	3514 Mar 04 15:12:51	9133 18727	N	-a	1.4148	0.2503	-0.7266	132.5	-	-		
69	31	3514 Aug 28 21:17:41	9139 18733	N	-t	-1.4073	0.3120	-0.7600	169.4	-	-		
55	20	3515 Feb 22 06:59:01	9144 18739	P	-a	0.7518	1.4646	0.4922	280.5	142.7	-		
43	08	3515 Aug 17 22:27:38	9149 18745	P	-t	-0.6399	1.7093	0.6586	333.8	178.4	-		

46	07	3516	Feb 11	20:57:17	9154	18751	T+	-p	0.0842	2.7093	1.6979	336.5	217.2	98.6
63	28	3518	Jun 17	05:17:49	9180	18780	P	-a	-0.9140	1.1602	0.2012	260.8	96.4	-
50	15	3518	Dec 10	12:43:03	9185	18786	P	-t	0.9610	1.1226	0.0671	283.7	61.0	-
50	03	3519	Jun 06	18:25:47	9190	18792	T-	-p	-0.1877	2.5183	1.5087	342.0	219.2	94.0
40	05	3519	Nov 29	21:59:14	9195	18798	T+	-p	0.2099	2.4710	1.4747	330.1	212.2	89.7
71	35	3521	Oct 09	19:35:57	9216	18821	N	-a	1.4399	0.2081	-0.7765	124.7	-	-
58	23	3522	Apr 04	12:59:23	9221	18827	P	-h	-0.8391	1.3336	0.3033	294.0	122.8	-
48	10	3522	Sep 29	05:26:51	9226	18833	P	-h	0.7550	1.4913	0.4540	312.7	150.1	-
44	10	3523	Mar 25	00:46:37	9231	18839	T-	pp	-0.1004	2.6643	1.6830	325.4	212.7	97.0
77	40	3525	Feb 01	18:39:25	9252	18862	N	-a	-1.4963	0.1265	-0.9017	101.0	-	-
65	31	3525	Jul 28	04:25:20	9257	18868	N	-h	1.1920	0.6618	-0.3205	214.5	-	-
55	17	3526	Jan 22	00:26:42	9262	18874	P	-h	-0.8677	1.3081	0.2244	308.6	111.3	-
42	07	3526	Jul 17	19:38:35	9267	18880	T	-a	0.4133	2.0720	1.1267	307.0	194.3	51.4
43	07	3527	Jan 11	00:11:19	9273	18886	T-	pp	-0.1955	2.5518	1.4475	376.2	230.6	94.1
72	38	3528	Nov 19	20:45:41	9293	18909	N	-a	-1.5452	0.0129	-0.9679	31.1	-	-
63	25	3529	May 16	20:13:39	9298	18915	P	-t	0.9028	1.2396	0.1638	306.1	97.2	-
42	05	3530	May 05	20:10:40	9309	18927	T+	pp	0.1773	2.5729	1.4932	371.5	230.8	96.9
40	03	3530	Oct 30	04:20:13	9314	18933	T-	-p	-0.1460	2.5794	1.6004	326.9	213.2	95.3
69	39	3532	Mar 14	23:50:47	9329	18950	N	-a	1.4276	0.2252	-0.7485	125.7	-	-
70	32	3532	Sep 08	03:52:58	9334	18956	N	-t	-1.4864	0.1677	-0.9062	125.9	-	-
56	21	3533	Mar 04	15:44:20	9340	18962	P	-a	0.7636	1.4427	0.4707	279.4	140.1	-
44	09	3533	Aug 28	05:10:30	9345	18968	P	-t	-0.7201	1.5614	0.5121	323.8	160.7	-
47	08	3534	Feb 22	05:34:07	9350	18974	T+	-p	0.0923	2.6953	1.6820	337.4	217.6	98.5
64	29	3536	Jun 27	12:51:34	9376	19003	P	-a	-0.9821	1.0353	0.0759	250.3	60.4	-
51	16	3536	Dec 20	20:50:30	9381	19009	P	-t	0.9769	1.0931	0.0381	280.0	46.0	-
51	04	3537	Jun 17	01:44:13	9387	19015	T-	-p	-0.2546	2.3962	1.3854	341.2	216.5	86.2
41	06	3537	Dec 10	06:22:06	9392	19021	T+	-p	0.2311	2.4320	1.4358	328.5	210.7	87.0
72	36	3539	Oct 21	03:20:42	9412	19044	N	-a	1.4927	0.1140	-0.8762	93.5	-	-

59	24	3540	Apr 14	20:58:16	9418	19050	P	-h	-0.8670	1.2794	0.2549	288.4	113.0	-
49	11	3540	Oct 09	12:40:00	9423	19056	P	-h	0.8179	1.3789	0.3359	305.9	131.8	-
45	11	3541	Apr 04	09:12:15	9428	19062	T-	-p	-0.1228	2.6209	1.6440	324.0	212.0	95.9
78	41	3543	Feb 13	03:11:25	9449	19085	N	-a	-1.5071	0.1079	-0.9227	93.8	-	-
66	32	3543	Aug 08	11:39:05	9454	19091	N	-h	1.2623	0.5314	-0.4480	193.9	-	-
56	18	3544	Feb 02	08:37:08	9459	19097	P	-t	-0.8782	1.2898	0.2038	307.8	106.6	-
43	08	3544	Jul 28	03:08:24	9465	19103	P	-a	0.4858	1.9383	0.9944	302.0	186.9	-
44	08	3545	Jan 21	08:10:54	9470	19109	T-	pp	-0.2077	2.5297	1.4249	375.7	229.9	92.5
64	26	3547	May 28	03:13:02	9496	19138	P	-t	0.9670	1.1211	0.0467	295.2	52.9	-
43	06	3548	May 16	03:18:50	9506	19150	T+	pp	0.2335	2.4674	1.3922	368.7	227.8	90.1
41	04	3548	Nov 09	12:23:05	9512	19156	T-	-p	-0.1859	2.5089	1.5246	327.3	212.2	92.0
70	40	3550	Mar 26	08:25:32	9527	19173	N	-a	1.4433	0.1945	-0.7757	116.9	-	-
71	33	3550	Sep 19	10:32:07	9532	19179	Ne	-t	-1.5620	0.0301	-1.0460	54.0	-	-
57	22	3551	Mar 16	00:25:17	9538	19185	P	-a	0.7787	1.4147	0.4434	277.8	136.7	-
45	10	3551	Sep 08	11:59:06	9543	19191	P	-t	-0.7960	1.4216	0.3734	313.2	139.8	-
48	09	3552	Mar 04	14:06:26	9548	19197	T+	-p	0.1035	2.6755	1.6608	338.4	217.9	98.2
65	30	3554	Jul 08	20:19:30	9574	19226	N	-a	-1.0545	0.9031	-0.0575	237.7	-	-
52	17	3555	Jan 01	05:04:35	9580	19232	P	-h	0.9882	1.0717	0.0179	277.1	31.5	-
52	05	3555	Jun 28	08:54:34	9585	19238	T	-a	-0.3276	2.2632	1.2508	339.4	212.3	73.2
42	07	3555	Dec 21	14:51:59	9590	19244	T+	-p	0.2471	2.4024	1.4067	327.2	209.3	84.8
73	37	3557	Oct 31	11:10:59	9611	19267	Ne	-a	1.5403	0.0295	-0.9664	48.1	-	-
60	25	3558	Apr 26	04:50:46	9616	19273	P	-h	-0.9009	1.2141	0.1958	281.7	99.6	-
50	12	3558	Oct 20	19:58:19	9622	19279	P	-h	0.8754	1.2763	0.2274	299.1	110.5	-
46	12	3559	Apr 15	17:30:48	9627	19285	T-	-p	-0.1515	2.5660	1.5936	322.5	210.9	94.1
79	42	3561	Feb 23	11:41:12	9648	19308	N	-a	-1.5191	0.0870	-0.9456	84.6	-	-
67	33	3561	Aug 18	18:55:42	9653	19314	N	-a	1.3307	0.4045	-0.5724	170.7	-	-
57	19	3562	Feb 12	16:47:18	9659	19320	P	-t	-0.8884	1.2719	0.1843	307.0	101.9	-
44	09	3562	Aug 08	10:37:34	9664	19326	P	-a	0.5588	1.8038	0.8608	296.2	177.9	-

45	09	3563	Feb 01	16:12:54	9669	19332	T-	pp	-0.2179	2.5108	1.4063	375.2	229.3	91.1
65	27	3565	Jun 07	10:05:41	9695	19361	N	-t	1.0361	0.9936	-0.0794	281.9	-	-
44	07	3566	May 27	10:19:49	9706	19373	T	pp	0.2960	2.3505	1.2799	365.0	223.5	79.4
42	05	3566	Nov 20	20:32:58	9712	19379	T-	-p	-0.2195	2.4498	1.4603	327.6	211.1	88.6
71	41	3568	Apr 05	16:52:54	9727	19396	N	-a	1.4654	0.1522	-0.8143	103.6	-	-
58	23	3569	Mar 26	08:59:52	9738	19408	P	-a	0.7989	1.3770	0.4067	275.6	131.8	-
46	11	3569	Sep 18	18:53:38	9743	19414	P	-t	-0.8676	1.2899	0.2425	302.0	114.6	-
49	10	3570	Mar 15	22:33:47	9749	19420	T+	-p	0.1183	2.6488	1.6332	339.2	218.1	97.6
66	31	3572	Jul 19	03:44:31	9775	19449	N	-a	-1.1288	0.7675	-0.1946	222.8	-	-
53	18	3573	Jan 11	13:24:33	9780	19455	P	-h	0.9958	1.0571	0.0048	274.7	16.3	-
53	06	3573	Jul 08	15:59:54	9786	19461	T	-a	-0.4037	2.1244	1.1100	336.7	206.3	50.9
43	08	3573	Dec 31	23:27:34	9791	19467	T+	-p	0.2590	2.3803	1.3852	325.9	208.2	83.0
61	26	3576	May 06	12:37:21	9817	19496	P	-h	-0.9403	1.1388	0.1265	273.9	80.6	-
51	13	3576	Oct 31	03:23:02	9823	19502	P	-h	0.9269	1.1848	0.1300	292.3	85.0	-
47	13	3577	Apr 26	01:43:13	9828	19508	T-	-p	-0.1858	2.5008	1.5329	320.7	209.5	91.5
80	43	3579	Mar 06	20:05:54	9849	19531	N	-a	-1.5345	0.0594	-0.9746	70.3	-	-
68	34	3579	Aug 30	02:16:23	9854	19537	N	-a	1.3963	0.2832	-0.6918	144.0	-	-
58	20	3580	Feb 24	00:52:58	9860	19543	P	-t	-0.9017	1.2481	0.1595	305.6	95.3	-
45	10	3580	Aug 18	18:09:00	9865	19549	P	-a	0.6302	1.6728	0.7300	289.8	167.3	-
46	10	3581	Feb 12	00:14:51	9871	19555	T-	pp	-0.2280	2.4918	1.3884	374.5	228.6	89.7
66	28	3583	Jun 18	16:49:31	9897	19584	N	-t	1.1118	0.8541	-0.2178	265.3	-	-
45	08	3584	Jun 06	17:15:13	9908	19596	T	-t	0.3636	2.2242	1.1581	360.5	217.7	62.2
43	06	3584	Dec 01	04:48:31	9913	19602	T-	-p	-0.2479	2.4004	1.4057	328.0	210.0	85.0
72	42	3586	Apr 17	01:14:43	9929	19619	N	-a	1.4923	0.1009	-0.8620	84.6	-	-
59	24	3587	Apr 06	17:28:28	9940	19631	P	-a	0.8240	1.3305	0.3611	272.7	125.3	-
47	12	3587	Sep 30	01:56:27	9945	19637	P	-t	-0.9331	1.1694	0.1224	290.5	82.6	-
50	11	3588	Mar 26	06:53:37	9951	19643	T+	-p	0.1388	2.6114	1.5952	339.9	218.1	96.5
67	32	3590	Jul 30	11:06:41	9977	19672	N	-a	-1.2051	0.6287	-0.3356	205.1	-	-

54	19	3591	Jan 22	21:47:36	9983	19678	Nx	-h	1.0015	1.0455	-0.0045	272.7	-	-
54	07	3591	Jul 19	22:59:41	9988	19684	P	-h	-0.4836	1.9791	0.9621	332.8	198.1	-
44	09	3592	Jan 12	08:08:02	9994	19690	T+	-p	0.2675	2.3640	1.3701	324.7	207.3	81.7
62	27	3594	May 17	20:16:12	10020	19719	P	-h	-0.9868	1.0504	0.0442	264.4	48.0	-
52	14	3594	Nov 11	10:54:54	10026	19725	P	-h	0.9719	1.1052	0.0445	285.9	50.5	-
48	14	3595	May 07	09:48:30	10031	19731	T-	-p	-0.2268	2.4234	1.4599	318.6	207.5	87.5
81	44	3597	Mar 17	04:26:16	10052	19754	N	-a	-1.5528	0.0264	-1.0087	47.1	-	-
69	35	3597	Sep 09	09:40:54	10058	19760	N	-a	1.4594	0.1668	-0.8068	111.3	-	-
59	21	3598	Mar 06	08:56:09	10063	19766	P	-t	-0.9165	1.2211	0.1322	303.7	87.3	-
46	11	3598	Aug 30	01:42:30	10069	19772	P	-a	0.6997	1.5454	0.6021	282.8	155.0	-
47	11	3599	Feb 23	08:14:46	10074	19778	T-	pp	-0.2401	2.4686	1.3670	373.6	227.8	88.0

37TH CENTURY CE

In the 37th century CE the total number of lunar eclipses will be --- lunar eclipses: --- penumbral lunar eclipses, --- partial lunar eclipses, --- total lunar eclipses (--- central total lunar eclipses, --- non-central total lunar eclipses).

PHASE														
DURATIONS														
SEQ.	REL.	CALENDAR	TD	ΔT	LUNA	ECL.	QSE	GAMMA	PEN.	UM.	PEN.	PAR.	TOTAL	
NUM.	NUM.	DATE	OF	s	NUM	TYPE			MAG.	MAG.	m	m	m	
GREATEST														
ECLIPSE														
67	29	3601	Jun 28	23:28:45	10101	19807	N	-t	1.1905	0.7092	-0.3618	245.5	-	-

53	17	3601	Dec 22	22:33:38	10106	19813	P	-a	-0.9353	1.1257	0.1575	254.9	84.6	-
46	09	3602	Jun 18	00:03:38	10112	19819	T	-t	0.4372	2.0869	1.0251	354.7	209.8	25.8
44	07	3602	Dec 12	13:10:50	10117	19825	T-	-p	-0.2701	2.3621	1.3625	328.6	209.1	81.8
73	43	3604	Apr 27	09:28:09	10133	19842	Ne	-a	1.5262	0.0368	-0.9224	51.3	-	-
60	25	3605	Apr 17	01:49:35	10144	19854	P	-a	0.8552	1.2726	0.3044	268.8	116.2	-
48	13	3605	Oct 10	09:06:19	10150	19860	P	-t	-0.9936	1.0583	0.0116	278.9	25.8	-
51	12	3606	Apr 06	15:06:51	10155	19866	T+	-p	0.1643	2.5649	1.5483	340.4	217.9	94.9
68	33	3608	Aug 09	18:27:56	10182	19895	N	-a	-1.2812	0.4904	-0.4767	184.2	-	-
55	20	3609	Feb 02	06:13:06	10187	19901	Nx	-h	1.0059	1.0361	-0.0113	270.8	-	-
55	08	3609	Jul 30	05:57:09	10193	19907	P	-h	-0.5646	1.8321	0.8121	327.7	187.6	-
45	10	3610	Jan 22	16:51:53	10198	19913	T	-p	0.2738	2.3519	1.3594	323.7	206.5	80.7
63	28	3612	May 28	03:50:28	10225	19942	N	-h	-1.0379	0.9538	-0.0467	253.4	-	-
53	15	3612	Nov 21	18:34:14	10231	19948	Nx	-h	1.0104	1.0375	-0.0288	280.1	-	-
49	15	3613	May 17	17:47:37	10236	19954	T	-p	-0.2733	2.3360	1.3766	316.1	204.9	81.6
70	36	3615	Sep 20	17:12:23	10263	19983	Ne	-a	1.5173	0.0600	-0.9128	67.2	-	-
60	22	3616	Mar 16	16:52:14	10269	19989	P	-t	-0.9364	1.1844	0.0959	300.8	74.8	-
47	12	3616	Sep 09	09:19:33	10274	19995	P	-a	0.7666	1.4232	0.4790	275.4	140.8	-
48	12	3617	Mar 05	16:11:27	10280	20001	T-	-p	-0.2550	2.4400	1.3409	372.5	226.8	85.6
68	30	3619	Jul 10	06:02:23	10307	20030	N	-t	1.2728	0.5579	-0.5125	221.1	-	-
54	18	3620	Jan 03	07:17:32	10312	20036	P	-a	-0.9478	1.1039	0.1334	253.3	78.2	-
47	10	3620	Jun 28	06:49:25	10318	20042	P	-t	0.5134	1.9451	0.8874	347.8	199.9	-
45	08	3620	Dec 22	21:38:32	10323	20048	T	-p	-0.2870	2.3335	1.3292	329.2	208.4	79.0
61	26	3623	Apr 28	10:02:40	10350	20077	P	-a	0.8930	1.2028	0.2357	263.8	103.4	-
49	14	3623	Oct 21	16:26:32	10356	20083	N	-t	-1.0464	0.9614	-0.0853	267.8	-	-
52	13	3624	Apr 16	23:11:27	10361	20089	T+	-p	0.1964	2.5061	1.4892	340.6	217.3	92.2
69	34	3626	Aug 21	01:48:13	10388	20118	N	-a	-1.3574	0.3522	-0.6182	158.8	-	-
56	21	3627	Feb 13	14:38:49	10394	20124	Nx	-h	1.0110	1.0250	-0.0190	268.7	-	-
56	09	3627	Aug 10	12:52:24	10400	20130	P	-h	-0.6465	1.6835	0.6600	321.4	174.0	-

46	11	3628	Feb 03	01:36:39	10405	20136	T	-p	0.2800	2.3394	1.3489	322.6	205.8	79.7
64	29	3630	Jun 08	11:18:28	10432	20165	N	-h	-1.0949	0.8463	-0.1485	240.3	-	-
54	16	3630	Dec 03	02:21:01	10438	20171	N	-h	1.0419	0.9823	-0.0894	275.2	-	-
50	16	3631	May 29	01:39:22	10443	20177	T	-p	-0.3264	2.2366	1.2812	313.2	201.4	72.9
61	23	3634	Mar 28	00:42:12	10476	20212	P	-t	-0.9610	1.1389	0.0512	296.8	55.1	-
48	13	3634	Sep 20	17:00:27	10482	20218	P	-a	0.8303	1.3070	0.3613	267.5	124.4	-
49	13	3635	Mar 17	00:03:42	10487	20224	T	-p	-0.2740	2.4036	1.3076	371.0	225.4	82.4
69	31	3637	Jul 20	12:32:51	10515	20253	N	-t	1.3571	0.4032	-0.6669	190.8	-	-
55	19	3638	Jan 13	16:04:46	10520	20259	P	-a	-0.9577	1.0867	0.1144	252.1	72.6	-
48	11	3638	Jul 09	13:31:14	10526	20265	P	-t	0.5930	1.7971	0.7430	339.6	187.2	-
46	09	3639	Jan 03	06:10:42	10531	20271	T	-p	-0.3000	2.3118	1.3032	330.0	208.0	76.7
62	27	3641	May 08	18:08:05	10559	20300	P	-a	0.9369	1.1218	0.1557	257.4	85.1	-
50	15	3641	Oct 31	23:55:27	10564	20306	N	-t	-1.0928	0.8763	-0.1704	257.2	-	-
53	14	3642	Apr 28	07:06:51	10570	20312	T+	-p	0.2354	2.4346	1.4175	340.4	216.1	87.9
70	35	3644	Aug 31	09:10:41	10597	20341	N	-a	-1.4311	0.2189	-0.7554	127.2	-	-
57	22	3645	Feb 23	23:04:50	10603	20347	Nx	-h	1.0167	1.0125	-0.0275	266.4	-	-
57	10	3645	Aug 20	19:46:38	10608	20353	P	-t	-0.7283	1.5354	0.5080	313.8	157.0	-
47	12	3646	Feb 13	10:22:36	10614	20359	T	-p	0.2858	2.3276	1.3395	321.5	205.1	78.7
65	30	3648	Jun 18	18:43:27	10641	20388	N	-h	-1.1549	0.7336	-0.2561	225.3	-	-
55	17	3648	Dec 13	10:12:46	10647	20394	N	-h	1.0689	0.9352	-0.1415	270.7	-	-
51	17	3649	Jun 08	09:26:16	10653	20400	T	-p	-0.3840	2.1290	1.1772	309.6	196.8	59.8
62	24	3652	Apr 07	08:22:49	10686	20435	Nx	-t	-0.9927	1.0800	-0.0065	291.2	-	-
49	14	3652	Oct 01	00:47:35	10691	20441	P	-a	0.8890	1.2003	0.2525	259.6	105.7	-
50	14	3653	Mar 27	07:50:36	10697	20447	T	-p	-0.2976	2.3585	1.2662	369.1	223.6	77.8
70	32	3655	Jul 31	19:01:08	10725	20476	N	-t	1.4423	0.2468	-0.8233	151.5	-	-
56	20	3656	Jan 25	00:55:01	10730	20482	P	-a	-0.9649	1.0742	0.1003	251.3	68.2	-
49	12	3656	Jul 19	20:12:42	10736	20488	P	-t	0.6736	1.6475	0.5969	330.2	171.6	-
47	10	3657	Jan 13	14:45:31	10742	20494	T	-p	-0.3102	2.2951	1.2826	330.8	207.7	74.7

63	28	3659	May 20	02:05:51	10769	20523	P	-a	0.9864	1.0305	0.0650	249.7	55.8	-
51	16	3659	Nov 12	07:34:29	10775	20529	N	-t	-1.1315	0.8052	-0.2415	247.6	-	-
54	15	3660	May 08	14:53:14	10780	20535	T	-p	0.2811	2.3510	1.3336	339.9	214.1	81.3
71	36	3662	Sep 11	16:35:05	10808	20564	Ne	-a	-1.5026	0.0901	-0.8886	82.9	-	-
58	23	3663	Mar 07	07:26:39	10814	20570	N	-h	1.0266	0.9921	-0.0434	263.2	-	-
58	11	3663	Sep 01	02:41:46	10819	20576	P	-t	-0.8084	1.3907	0.3589	305.1	135.4	-
48	13	3664	Feb 24	19:06:48	10825	20582	T	-p	0.2937	2.3117	1.3264	320.3	204.4	77.5
66	31	3666	Jun 30	02:02:56	10853	20611	N	-h	-1.2200	0.6117	-0.3731	207.4	-	-
56	18	3666	Dec 24	18:11:21	10858	20617	N	-h	1.0898	0.8993	-0.1819	267.3	-	-
52	18	3667	Jun 19	17:07:54	10864	20623	T	-a	-0.4465	2.0127	1.0640	305.3	191.0	37.2
63	25	3670	Apr 18	15:56:19	10897	20658	Nx	-t	-1.0297	1.0114	-0.0735	284.1	-	-
50	15	3670	Oct 12	08:40:34	10903	20664	P	-a	0.9426	1.1031	0.1530	251.7	83.4	-
51	15	3671	Apr 07	15:29:56	10909	20670	T	-p	-0.3275	2.3015	1.2133	366.7	221.1	71.0
71	33	3673	Aug 11	01:29:36	10937	20699	Ne	-t	1.5265	0.0925	-0.9781	94.1	-	-
57	21	3674	Feb 04	09:45:16	10942	20705	P	-a	-0.9722	1.0613	0.0864	250.4	63.5	-
50	13	3674	Jul 31	02:52:39	10948	20711	P	-t	0.7557	1.4953	0.4476	319.3	151.8	-
48	11	3675	Jan 24	23:22:29	10954	20717	T	-p	-0.3180	2.2824	1.2666	331.7	207.6	73.1
64	29	3677	May 30	09:55:30	10982	20746	N	-a	1.0424	0.9275	-0.0375	239.9	-	-
52	17	3677	Nov 22	15:22:45	10987	20752	N	-t	-1.1635	0.7467	-0.3001	239.2	-	-
55	16	3678	May 19	22:30:27	10993	20758	T	-a	0.3335	2.2550	1.2372	338.6	211.0	71.2
59	24	3681	Mar 17	15:46:13	11027	20793	N	-h	1.0390	0.9669	-0.0636	259.5	-	-
59	12	3681	Sep 11	09:38:37	11032	20799	P	-t	-0.8861	1.2505	0.2139	295.2	107.1	-
49	14	3682	Mar 07	03:48:23	11038	20805	T	-p	0.3040	2.2910	1.3090	319.0	203.4	75.8
67	32	3684	Jul 10	09:22:13	11066	20834	N	-h	-1.2860	0.4885	-0.4921	186.8	-	-
57	19	3685	Jan 04	02:13:46	11072	20840	N	-t	1.1073	0.8690	-0.2161	264.4	-	-
53	19	3685	Jun 30	00:44:59	11078	20846	P	-a	-0.5132	1.8890	0.9430	300.3	183.6	-
64	26	3688	Apr 28	23:19:55	11111	20881	N	-t	-1.0741	0.9289	-0.1542	274.8	-	-
51	16	3688	Oct 22	16:39:40	11117	20887	P	-a	0.9914	1.0151	0.0622	243.9	53.8	-

52	16	3689	Apr 17	23:02:50	11123	20893	T	-p	-0.3631	2.2339	1.1502	363.7	217.8	60.8
58	22	3692	Feb 15	18:35:04	11157	20928	P	-a	-0.9799	1.0476	0.0720	249.5	58.1	-
51	14	3692	Aug 10	09:35:42	11162	20934	P	-t	0.8359	1.3469	0.3018	307.2	127.1	-
49	12	3693	Feb 04	08:00:05	11168	20940	T	-p	-0.3246	2.2717	1.2530	332.6	207.5	71.7
65	30	3695	Jun 10	17:38:04	11196	20969	N	-a	1.1038	0.8150	-0.1501	228.1	-	-
53	18	3695	Dec 03	23:20:25	11202	20975	N	-t	-1.1885	0.7005	-0.3460	232.0	-	-
56	17	3696	May 30	05:59:22	11208	20981	T	-a	0.3922	2.1477	1.1292	336.7	206.6	54.6
60	25	3699	Mar 28	23:59:34	11242	21016	N	-h	1.0569	0.9313	-0.0938	254.5	-	-
60	13	3699	Sep 22	16:39:13	11247	21022	P	-t	-0.9596	1.1182	0.0765	284.4	65.5	-
50	15	3700	Mar 18	12:25:07	11253	21028	T	-p	0.3188	2.2621	1.2837	317.5	202.2	73.2

38TH CENTURY CE

In the 38th century CE the total number of lunar eclipses will be --- lunar eclipses: --- penumbral lunar eclipses, --- partial lunar eclipses, --- total lunar eclipses (--- central total lunar eclipses, --- non-central total lunar eclipses).

PHASE														
DURATIONS														
SEQ.	REL.	CALENDAR	TD	ΔT	LUNA	ECL.	QSE	GAMMA	PEN.	UM.	PEN.	PAR.	TOTAL	
NUM.	NUM.	DATE	OF	s	NUM	TYPE			MAG.	MAG.	m	m	m	
GREATEST														
ECLIPSE														
68	33	3702	Jul 22	16:38:57	11281	21057	N	-a	-1.3547	0.3603	-0.6164	161.8	-	-
58	20	3703	Jan 16	10:20:05	11287	21063	N	-t	1.1210	0.8455	-0.2428	262.1	-	-

54	20	3703	Jul 12	08:19:07	11293	21069	P	-a	-0.5826	1.7607	0.8167	294.4	174.6	-
65	27	3706	May 11	06:34:23	11327	21104	N	-t	-1.1254	0.8339	-0.2472	263.1	-	-
52	17	3706	Nov 04	00:46:12	11333	21110	N	-a	1.0339	0.9386	-0.0173	236.7	-	-
53	17	3707	Apr 30	06:27:46	11339	21116	T	-t	-0.4057	2.1534	1.0745	360.1	213.4	43.9
59	23	3710	Feb 27	03:22:16	11373	21151	P	-a	-0.9894	1.0302	0.0544	248.2	50.7	-
52	15	3710	Aug 22	16:20:40	11379	21157	P	-t	0.9145	1.2016	0.1585	294.0	93.8	-
50	13	3711	Feb 16	16:35:29	11384	21163	T	-p	-0.3324	2.2587	1.2377	333.3	207.4	70.0
66	31	3713	Jun 22	01:13:47	11413	21192	N	-a	1.1700	0.6935	-0.2719	213.6	-	-
54	19	3713	Dec 15	07:26:33	11419	21198	N	-h	-1.2074	0.6656	-0.3804	226.3	-	-
57	18	3714	Jun 11	13:18:34	11424	21204	T	-a	0.4579	2.0275	1.0083	333.7	200.4	14.4
61	26	3717	Apr 09	08:08:34	11459	21239	N	-h	1.0790	0.8879	-0.1316	248.6	-	-
61	14	3717	Oct 03	23:43:08	11465	21245	N	-t	-1.0294	0.9927	-0.0544	272.7	-	-
51	16	3718	Mar 29	20:57:29	11470	21251	T	-p	0.3376	2.2257	1.2510	315.7	200.7	69.5
69	34	3720	Aug 01	23:56:41	11499	21280	N	-a	-1.4231	0.2333	-0.7402	131.2	-	-
59	21	3721	Jan 26	18:27:05	11505	21286	N	-t	1.1338	0.8234	-0.2675	259.9	-	-
55	21	3721	Jul 22	15:50:55	11511	21292	P	-a	-0.6542	1.6286	0.6860	287.5	163.4	-
66	28	3724	May 21	13:39:40	11545	21327	N	-t	-1.1835	0.7263	-0.3530	248.3	-	-
53	18	3724	Nov 14	09:00:08	11551	21333	N	-a	1.0706	0.8728	-0.0863	230.1	-	-
54	18	3725	May 10	13:45:00	11557	21339	P	-t	-0.4548	2.0607	0.9868	355.6	207.7	-
60	24	3728	Mar 09	12:06:48	11591	21374	P	-a	-1.0009	1.0092	0.0334	246.5	39.9	-
53	16	3728	Sep 01	23:09:37	11597	21380	P	-t	0.9905	1.0613	0.0201	279.6	33.9	-
51	14	3729	Feb 27	01:08:44	11603	21386	T	-p	-0.3413	2.2433	1.2204	334.0	207.2	68.0
67	32	3731	Jul 03	08:44:51	11631	21415	N	-a	1.2395	0.5667	-0.3997	196.0	-	-
55	20	3731	Dec 26	15:38:59	11637	21421	N	-h	-1.2219	0.6386	-0.4065	221.5	-	-
58	19	3732	Jun 21	20:31:23	11643	21427	P	-h	0.5278	1.8998	0.8793	329.7	192.2	-
62	27	3735	Apr 20	16:09:20	11678	21462	N	-h	1.1085	0.8308	-0.1828	240.8	-	-
62	15	3735	Oct 15	06:53:38	11684	21468	N	-t	-1.0930	0.8789	-0.1737	260.7	-	-
52	17	3736	Apr 09	05:23:50	11690	21474	T	-p	0.3620	2.1789	1.2084	313.7	198.7	64.2

70	35	3738	Aug 13	07:14:29	11718	21503	N	-a	-1.4917	0.1060	-0.8648	89.2	-	-
60	22	3739	Feb 07	02:35:29	11724	21509	N	-t	1.1449	0.8040	-0.2888	257.9	-	-
56	22	3739	Aug 02	23:22:25	11730	21515	P	-a	-0.7260	1.4963	0.5546	279.9	149.9	-
67	29	3742	Jun 01	20:36:40	11765	21550	N	-t	-1.2479	0.6071	-0.4702	229.8	-	-
54	19	3742	Nov 25	17:21:07	11771	21556	N	-a	1.1013	0.8181	-0.1442	224.3	-	-
55	19	3743	May 21	20:54:29	11777	21562	P	-t	-0.5108	1.9555	0.8866	350.1	200.2	-
61	25	3746	Mar 20	20:44:44	11811	21597	P	-a	-1.0177	0.9782	0.0028	243.9	11.6	-
54	17	3746	Sep 13	06:03:45	11817	21603	N	-t	1.0626	0.9282	-0.1118	264.3	-	-
52	15	3747	Mar 10	09:36:46	11823	21609	T	-p	-0.3539	2.2208	1.1966	334.5	206.8	64.9
68	33	3749	Jul 13	16:09:21	11852	21638	N	-a	1.3134	0.4317	-0.5360	173.9	-	-
56	21	3750	Jan 05	23:58:48	11858	21644	N	-h	-1.2310	0.6213	-0.4226	218.2	-	-
59	20	3750	Jul 03	03:36:38	11864	21650	P	-h	0.6027	1.7632	0.7411	324.5	181.3	-
63	28	3753	May 01	00:05:31	11899	21685	N	-h	1.1423	0.7658	-0.2419	231.7	-	-
63	16	3753	Oct 25	14:09:25	11905	21691	N	-t	-1.1513	0.7748	-0.2836	248.3	-	-
53	18	3754	Apr 20	13:43:02	11911	21697	T	-p	0.3924	2.1209	1.1545	311.2	196.0	56.2
61	23	3757	Feb 17	10:41:32	11946	21732	N	-t	1.1574	0.7816	-0.3123	255.3	-	-
57	23	3757	Aug 13	06:52:40	11952	21738	P	-a	-0.7990	1.3623	0.4208	271.2	133.2	-
68	30	3760	Jun 12	03:25:41	11987	21773	N	-t	-1.3179	0.4778	-0.5977	206.4	-	-
55	20	3760	Dec 06	01:48:17	11993	21779	N	-a	1.1270	0.7726	-0.1929	219.3	-	-
56	20	3761	Jun 01	03:57:37	11999	21785	P	-t	-0.5723	1.8401	0.7762	343.5	190.6	-
62	26	3764	Mar 31	05:17:46	12034	21820	N	-a	-1.0382	0.9402	-0.0346	240.4	-	-
55	18	3764	Sep 23	13:04:50	12040	21826	N	-t	1.1296	0.8048	-0.2342	248.5	-	-
53	16	3765	Mar 20	17:59:51	12046	21832	T	-a	-0.3698	2.1920	1.1668	334.7	206.0	60.5
69	34	3767	Jul 24	23:31:51	12075	21861	N	-a	1.3878	0.2961	-0.6737	146.3	-	-
57	22	3768	Jan 17	08:22:43	12081	21867	N	-h	-1.2369	0.6095	-0.4326	215.7	-	-
60	21	3768	Jul 13	10:36:47	12087	21873	P	-t	0.6808	1.6210	0.5968	317.8	167.2	-
64	29	3771	May 12	07:53:51	12122	21908	N	-h	1.1828	0.6884	-0.3134	220.5	-	-
64	17	3771	Nov 05	21:32:22	12128	21914	N	-t	-1.2027	0.6833	-0.3807	236.3	-	-

54	19	3772	Apr 30	21:55:36	12134	21920	T	-p	0.4287	2.0524	1.0900	308.4	192.6	43.7
62	24	3775	Feb 28	18:44:46	12170	21955	N	-t	1.1717	0.7555	-0.3388	252.1	-	-
58	24	3775	Aug 24	14:25:10	12176	21961	P	-a	-0.8701	1.2319	0.2901	261.7	112.7	-
69	31	3778	Jun 23	10:07:38	12211	21996	N	-t	-1.3929	0.3394	-0.7345	176.3	-	-
56	21	3778	Dec 17	10:21:57	12217	22002	N	-a	1.1474	0.7368	-0.2318	215.2	-	-
57	21	3779	Jun 12	10:55:06	12223	22008	P	-t	-0.6388	1.7156	0.6564	335.7	178.6	-
63	27	3782	Apr 11	13:42:37	12259	22043	N	-a	-1.0653	0.8901	-0.0840	235.5	-	-
56	19	3782	Oct 04	20:13:51	12265	22049	N	-t	1.1906	0.6925	-0.3458	232.4	-	-
54	17	3783	Apr 01	02:14:32	12271	22055	T	-a	-0.3921	2.1516	1.1257	334.6	204.5	53.4
70	35	3785	Aug 04	06:50:27	12300	22084	N	-a	1.4646	0.1566	-0.8157	108.1	-	-
58	23	3786	Jan 27	16:50:46	12306	22090	N	-h	-1.2406	0.6016	-0.4381	213.7	-	-
61	22	3786	Jul 24	17:31:40	12312	22096	P	-t	0.7623	1.4728	0.4460	309.5	148.5	-
65	30	3789	May 22	15:36:20	12348	22131	N	-h	1.2287	0.6013	-0.3947	206.9	-	-
65	18	3789	Nov 16	05:01:53	12354	22137	N	-t	-1.2481	0.6029	-0.4666	224.5	-	-
55	20	3790	May 12	06:01:07	12360	22143	T	-a	0.4709	1.9730	1.0145	305.0	188.3	17.9
63	25	3793	Mar 11	02:42:56	12395	22178	N	-t	1.1897	0.7223	-0.3718	247.6	-	-
59	25	3793	Sep 03	21:59:16	12402	22184	P	-a	-0.9401	1.1041	0.1613	251.4	85.6	-
70	32	3796	Jul 03	16:44:18	12437	22219	N	-t	-1.4714	0.1945	-0.8780	135.2	-	-
57	22	3796	Dec 27	19:01:16	12443	22225	N	-a	1.1633	0.7090	-0.2624	212.1	-	-
58	22	3797	Jun 22	17:46:33	12449	22231	P	-t	-0.7107	1.5813	0.5268	326.4	163.0	-
64	28	3800	Apr 22	22:01:33	12485	22266	N	-a	-1.0969	0.8318	-0.1415	229.5	-	-
57	20	3800	Oct 16	03:30:11	12491	22272	N	-t	1.2463	0.5902	-0.4477	216.0	-	-

39TH CENTURY CE

**In the 39th century CE the total number of lunar eclipses will be --- lunar eclipses:
 --- penumbral lunar eclipses, --- partial lunar eclipses, --- total lunar eclipses
 (--- central total lunar eclipses, --- non-central total lunar eclipses).**

													PHASE	
													DURATIONS	
SEQ.	REL.	CALENDAR	TD	ΔT	LUNA	ECL.	QSE	GAMMA	PEN.	UM.	PEN.	PAR.	TOTAL	
NUM.	NUM.	DATE	OF	s	NUM	TYPE			MAG.	MAG.	m	m	m	
GREATEST														
ECLIPSE														
55	18	3801 Apr 12 10:22:36	12497	22278	T	-a	-0.4190	2.1024	1.0761	334.0	202.5	42.3		
71	36	3803 Aug 16 14:09:24	12527	22307	Ne	-a	1.5401	0.0196	-0.9559	38.9	-	-		
59	24	3804 Feb 09 01:19:03	12533	22313	N	-a	-1.2445	0.5930	-0.4438	211.6	-	-		
62	23	3804 Aug 05 00:24:18	12539	22319	P	-t	0.8443	1.3237	0.2940	299.7	123.7	-		
66	31	3807 Jun 03 23:12:02	12575	22354	N	-h	1.2804	0.5036	-0.4868	190.4	-	-		
66	19	3807 Nov 28 12:39:23	12581	22360	N	-t	-1.2858	0.5363	-0.5385	213.8	-	-		
56	21	3808 May 23 14:00:01	12587	22366	P	-a	0.5190	1.8828	0.9281	300.9	182.7	-		
64	26	3811 Mar 23 10:36:05	12623	22401	N	-t	1.2113	0.6824	-0.4109	241.9	-	-		
60	26	3811 Sep 16 05:37:11	12630	22407	P	-a	-1.0067	0.9827	0.0384	240.4	42.5	-		
71	33	3814 Jul 15 23:17:08	12665	22442	Ne	-t	-1.5526	0.0450	-1.0265	65.9	-	-		
58	23	3815 Jan 09 03:44:10	12672	22448	N	-a	1.1763	0.6863	-0.2875	209.5	-	-		
59	23	3815 Jul 05 00:35:16	12678	22454	P	-t	-0.7855	1.4420	0.3918	315.7	143.2	-		
65	29	3818 May 04 06:10:14	12714	22489	N	-a	-1.1365	0.7588	-0.2138	221.2	-	-		
58	21	3818 Oct 27 10:56:47	12720	22495	N	-t	1.2943	0.5020	-0.5356	200.3	-	-		
56	19	3819 Apr 23 18:21:13	12726	22501	T	-a	-0.4530	2.0400	1.0135	332.8	199.5	18.2		
60	25	3822 Feb 19 09:49:06	12762	22536	N	-a	-1.2476	0.5854	-0.4479	209.7	-	-		
63	24	3822 Aug 16 07:14:53	12769	22542	P	-t	0.9268	1.1740	0.1409	288.1	87.8	-		
67	32	3825 Jun 14 06:43:41	12805	22577	N	-a	1.3360	0.3990	-0.5860	170.4	-	-		

67	20	3825	Dec 08	20:23:19	12811	22583	N	-t	-1.3181	0.4796	-0.6002	204.0	-	-
57	22	3826	Jun 03	21:51:52	12817	22589	P	-a	0.5733	1.7814	0.8301	296.0	175.6	-
65	27	3829	Apr 02	18:20:50	12853	22624	N	-t	1.2392	0.6306	-0.4614	233.9	-	-
61	27	3829	Sep 26	13:18:54	12859	22630	N	-a	-1.0701	0.8674	-0.0790	228.8	-	-
59	24	3833	Jan 19	12:31:12	12902	22671	N	-a	1.1861	0.6695	-0.3066	207.6	-	-
60	24	3833	Jul 15	07:20:45	12908	22677	P	-t	-0.8634	1.2970	0.2507	303.3	116.7	-
66	30	3836	May 14	14:12:48	12945	22712	N	-a	-1.1808	0.6772	-0.2949	211.2	-	-
59	22	3836	Nov 06	18:31:54	12951	22718	N	-t	1.3362	0.4250	-0.6125	185.1	-	-
57	20	3837	May 04	02:10:56	12957	22724	P	-a	-0.4938	1.9653	0.9386	331.0	195.2	-
61	26	3840	Mar 01	18:16:58	12993	22759	N	-a	-1.2531	0.5735	-0.4558	207.0	-	-
64	25	3840	Aug 26	14:04:24	13000	22765	Nx	-t	1.0091	1.0250	-0.0120	274.7	-	-
68	33	3843	Jun 25	14:10:43	13036	22800	N	-a	1.3959	0.2866	-0.6935	145.4	-	-
68	21	3843	Dec 20	04:13:18	13043	22806	N	-t	-1.3449	0.4328	-0.6516	195.2	-	-
58	23	3844	Jun 14	05:38:46	13049	22812	P	-a	0.6320	1.6721	0.7238	290.4	166.8	-
66	28	3847	Apr 14	01:58:31	13085	22847	N	-t	1.2723	0.5689	-0.5214	223.6	-	-
62	28	3847	Oct 07	21:06:44	13092	22853	N	-a	-1.1284	0.7616	-0.1873	216.9	-	-
60	25	3851	Jan 30	21:19:23	13134	22894	N	-a	1.1951	0.6538	-0.3240	205.8	-	-
61	25	3851	Jul 26	14:06:25	13141	22900	P	-t	-0.9416	1.1517	0.1090	289.4	78.3	-
67	31	3854	May 25	22:05:36	13177	22935	N	-a	-1.2330	0.5812	-0.3905	198.0	-	-
60	23	3854	Nov 18	02:17:16	13184	22941	N	-t	1.3707	0.3616	-0.6758	171.2	-	-
58	21	3855	May 15	09:50:51	13190	22947	P	-a	-0.5421	1.8769	0.8499	328.3	189.3	-
62	27	3858	Mar 13	02:42:30	13227	22982	N	-a	-1.2610	0.5566	-0.4682	203.4	-	-
65	26	3858	Sep 06	20:55:27	13233	22988	N	-t	1.0890	0.8806	-0.1607	259.5	-	-
69	34	3861	Jul 05	21:34:16	13270	23023	N	-a	1.4589	0.1686	-0.8071	112.3	-	-
69	22	3861	Dec 30	12:09:00	13276	23029	N	-t	-1.3663	0.3955	-0.6930	187.8	-	-
59	24	3862	Jun 25	13:20:32	13282	23035	P	-a	0.6949	1.5554	0.6097	283.7	155.9	-
67	29	3865	Apr 24	09:26:52	13319	23070	N	-t	1.3124	0.4942	-0.5939	210.0	-	-
63	29	3865	Oct 18	05:00:38	13326	23076	N	-a	-1.1817	0.6653	-0.2866	204.9	-	-

61	26	3869	Feb 10	06:09:02	13369	23117	N	-a	1.2028	0.6404	-0.3387	204.3	-	-
62	26	3869	Aug 05	20:50:37	13375	23123	Nx	-t	-1.0214	1.0036	-0.0359	273.5	-	-
68	32	3872	Jun 05	05:52:16	13412	23158	N	-a	-1.2896	0.4773	-0.4943	181.7	-	-
61	24	3872	Nov 28	10:10:39	13419	23164	N	-h	1.3995	0.3087	-0.7285	158.5	-	-
59	22	3873	May 25	17:22:17	13425	23170	P	-a	-0.5966	1.7770	0.7496	324.6	181.5	-
63	28	3876	Mar 23	11:03:23	13462	23205	N	-a	-1.2733	0.5315	-0.4884	198.5	-	-
66	27	3876	Sep 17	03:48:47	13468	23211	N	-t	1.1659	0.7418	-0.3042	242.5	-	-
70	35	3879	Jul 17	04:56:09	13506	23246	Ne	-a	1.5238	0.0476	-0.9241	60.1	-	-
70	23	3880	Jan 10	20:09:56	13512	23252	N	-t	-1.3828	0.3670	-0.7250	181.8	-	-
60	25	3880	Jul 05	20:58:00	13518	23258	P	-a	0.7618	1.4317	0.4880	276.0	142.1	-
68	30	3883	May 05	16:47:56	13556	23293	N	-t	1.3581	0.4093	-0.6766	192.7	-	-
64	30	3883	Oct 29	13:00:31	13562	23299	N	-a	-1.2302	0.5779	-0.3772	192.9	-	-
62	27	3887	Feb 21	14:55:49	13606	23340	N	-a	1.2130	0.6222	-0.3579	202.1	-	-
63	27	3887	Aug 17	03:38:28	13612	23346	N	-t	-1.0991	0.8598	-0.1770	256.0	-	-
69	33	3890	Jun 16	13:29:54	13649	23381	N	-a	-1.3531	0.3610	-0.6110	160.2	-	-
62	25	3890	Dec 09	18:14:23	13656	23387	N	-h	1.4210	0.2691	-0.7677	148.0	-	-
60	23	3891	Jun 06	00:44:57	13662	23393	P	-h	-0.6576	1.6654	0.6375	319.7	171.1	-
64	29	3894	Apr 03	19:20:11	13699	23428	N	-a	-1.2899	0.4985	-0.5161	192.1	-	-
67	28	3894	Sep 28	10:46:17	13706	23434	N	-t	1.2386	0.6109	-0.4400	223.7	-	-
71	24	3898	Jan 21	04:13:14	13750	23475	N	-t	-1.3971	0.3421	-0.7525	176.3	-	-
61	26	3898	Jul 17	04:32:33	13756	23481	P	-a	0.8311	1.3038	0.3616	267.2	124.6	-

40TH CENTURY CE

In the 40th century CE the total number of lunar eclipses will be --- lunar eclipses:
 --- penumbral lunar eclipses, --- partial lunar eclipses, --- total lunar eclipses

(--- central total lunar eclipses, --- non-central total lunar eclipses).

													PHASE
													DURATIONS
SEQ.	REL.	CALENDAR	TD	ΔT	LUNA	ECL.	QSE	GAMMA	PEN.	UM.	PEN.	PAR.	TOTAL
NUM.	NUM.	DATE	OF	s	NUM	TYPE			MAG.	MAG.	m	m	m
GREATEST													
ECLIPSE													
69	31	3901 May 16 23:57:46	13794	23516	N	-t	1.4121	0.3089	-0.7745	169.0	-	-	
65	31	3901 Nov 09 21:07:55	13800	23522	N	-a	-1.2725	0.5021	-0.4564	181.4	-	-	
63	28	3905 Mar 04 23:41:52	13844	23563	N	-a	1.2236	0.6029	-0.3778	199.6	-	-	
64	28	3905 Aug 28 10:28:24	13851	23569	N	-t	-1.1756	0.7182	-0.3162	236.5	-	-	
70	34	3908 Jun 27 21:02:59	13888	23604	N	-a	-1.4197	0.2392	-0.7336	132.2	-	-	
63	26	3908 Dec 21 02:25:11	13895	23610	N	-h	1.4376	0.2383	-0.7978	139.3	-	-	
61	24	3909 Jun 17 07:58:44	13901	23616	P	-h	-0.7250	1.5422	0.5134	313.3	157.1	-	
65	30	3912 Apr 15 03:30:33	13939	23651	N	-a	-1.3121	0.4549	-0.5540	183.5	-	-	
68	29	3912 Oct 09 17:47:52	13945	23657	N	-t	1.3069	0.4881	-0.5679	203.1	-	-	
72	25	3916 Feb 02 12:18:51	13990	23698	N	-t	-1.4090	0.3213	-0.7755	171.5	-	-	
62	27	3916 Jul 28 12:04:55	13996	23704	P	-a	0.9023	1.1727	0.2314	257.0	101.5	-	
70	32	3919 May 28 07:01:10	14034	23739	N	-t	1.4707	0.2002	-0.8808	137.4	-	-	
66	32	3919 Nov 21 05:22:03	14041	23745	N	-a	-1.3090	0.4369	-0.5252	170.6	-	-	
64	29	3923 Mar 16 08:22:42	14085	23786	N	-a	1.2388	0.5752	-0.4056	195.9	-	-	
65	29	3923 Sep 08 17:23:24	14091	23792	N	-t	-1.2485	0.5834	-0.4492	215.3	-	-	
71	35	3926 Jul 09 04:29:17	14130	23827	N	-a	-1.4912	0.1086	-0.8655	90.4	-	-	
64	27	3927 Jan 01 10:43:32	14136	23833	N	-h	1.4491	0.2166	-0.8185	132.6	-	-	
62	25	3927 Jun 28 15:05:40	14143	23839	P	-t	-0.7972	1.4102	0.3802	305.3	138.4	-	
66	31	3930 Apr 26 11:34:54	14181	23874	N	-a	-1.3397	0.4013	-0.6020	172.5	-	-	
69	30	3930 Oct 21 00:56:06	14187	23880	N	-t	1.3689	0.3770	-0.6843	181.1	-	-	

73	26	3934	Feb 12	20:23:51	14232	23921	N	-t	-1.4211	0.2997	-0.7983	166.3	-	-
63	28	3934	Aug 08	19:37:01	14238	23927	P	-a	0.9737	1.0415	0.1005	245.7	68.1	-
71	33	3937	Jun 07	13:54:49	14276	23962	Ne	-t	1.5362	0.0787	-0.9999	87.1	-	-
67	33	3937	Dec 01	13:44:03	14283	23968	N	-a	-1.3394	0.3830	-0.5827	160.8	-	-
65	30	3941	Mar 26	16:59:12	14328	24009	N	-a	1.2571	0.5415	-0.4393	191.0	-	-
66	30	3941	Sep 19	00:23:25	14334	24015	N	-t	-1.3179	0.4554	-0.5757	191.9	-	-
65	28	3945	Jan 11	19:07:22	14379	24056	N	-a	1.4571	0.2012	-0.8325	127.6	-	-
63	26	3945	Jul 08	22:06:05	14386	24062	P	-t	-0.8742	1.2698	0.2382	295.4	112.3	-
67	32	3948	May 06	19:32:26	14424	24097	N	-a	-1.3736	0.3363	-0.6612	158.2	-	-
70	31	3948	Oct 31	08:10:27	14431	24103	N	-t	1.4252	0.2766	-0.7902	157.1	-	-
74	27	3952	Feb 24	04:28:32	14476	24144	N	-t	-1.4330	0.2783	-0.8204	160.7	-	-
64	29	3952	Aug 19	03:07:54	14482	24150	N	-a	1.0460	0.9089	-0.0324	232.9	-	-
68	34	3955	Dec 12	22:11:08	14527	24191	N	-a	-1.3655	0.3369	-0.6324	151.7	-	-
66	31	3959	Apr 07	01:28:01	14573	24232	N	-a	1.2814	0.4968	-0.4837	184.1	-	-
67	31	3959	Sep 30	07:31:21	14579	24238	N	-t	-1.3814	0.3384	-0.6916	166.7	-	-
66	29	3963	Jan 23	03:36:49	14625	24279	N	-a	1.4616	0.1921	-0.8398	124.4	-	-
64	27	3963	Jul 20	05:01:02	14631	24285	P	-t	-0.9543	1.1237	0.0902	283.4	70.8	-
68	33	3966	May 18	03:24:22	14670	24320	N	-a	-1.4125	0.2619	-0.7299	140.0	-	-
71	32	3966	Nov 11	15:31:21	14677	24326	N	-t	1.4753	0.1871	-0.8849	130.7	-	-
75	28	3970	Mar 06	12:28:05	14722	24367	N	-t	-1.4483	0.2502	-0.8484	153.0	-	-
65	30	3970	Aug 30	10:41:35	14729	24373	N	-a	1.1157	0.7816	-0.1607	218.9	-	-
69	35	3973	Dec 23	06:45:44	14774	24414	N	-a	-1.3854	0.3020	-0.6707	144.4	-	-
67	32	3977	Apr 17	09:51:01	14820	24455	N	-a	1.3102	0.4437	-0.5363	175.2	-	-
68	32	3977	Oct 10	14:46:54	14826	24461	N	-t	-1.4394	0.2314	-0.7978	138.7	-	-
67	30	3981	Feb 02	12:08:07	14872	24502	N	-a	1.4651	0.1844	-0.8450	121.5	-	-
65	28	3981	Jul 30	11:51:16	14879	24508	N	-t	-1.0373	0.9727	-0.0634	268.9	-	-
69	34	3984	May 28	11:08:36	14918	24543	N	-a	-1.4583	0.1751	-0.8111	115.0	-	-
72	33	3984	Nov 21	22:59:54	14924	24549	N	-t	1.5188	0.1101	-0.9672	101.3	-	-

76	29	3988	Mar 16	20:24:50	14970	24590	N	-t	-1.4654	0.2184	-0.8794	143.4	-	-
66	31	3988	Sep 09	18:16:27	14977	24596	N	-a	1.1843	0.6566	-0.2872	203.3	-	-
70	36	3992	Jan 03	15:24:23	15023	24637	N	-a	-1.4019	0.2733	-0.7025	138.0	-	-
68	33	3995	Apr 28	18:05:22	15069	24678	N	-a	1.3457	0.3784	-0.6011	163.2	-	-
69	33	3995	Oct 21	22:10:18	15075	24684	N	-t	-1.4918	0.1351	-0.8936	106.6	-	-
68	31	3999	Feb 13	20:41:02	15121	24725	N	-a	1.4680	0.1775	-0.8489	118.9	-	-
66	29	3999	Aug 10	18:39:11	15128	24731	N	-t	-1.1210	0.8206	-0.2182	251.8	-	-

5TH MILLENNIUM CE

In the 5th millennium CE the total number of lunar eclipses will be --- lunar eclipses: --- penumbral lunar eclipses, --- partial lunar eclipses, --- total lunar eclipses (--- central total lunar eclipses, --- non-central total lunar eclipses).

41ST CENTURY CE

In the 41st century CE the total number of lunar eclipses will be --- lunar eclipses: --- penumbral lunar eclipses, --- partial lunar eclipses, --- total lunar eclipses (--- central total lunar eclipses, --- non-central total lunar eclipses).

													PHASE
													DURATIONS
SEQ.	REL.	CALENDAR	TD	ΔT	LUNA	ECL.	QSE	GAMMA	PEN.	UM.	PEN.	PAR.	TOTAL
NUM.	NUM.	DATE	OF	s	NUM	TYPE			MAG.	MAG.	m	m	m
GREATEST													
ECLIPSE													
70	35	4002 Jun 08 18:48:16	15167 24766	N -a	-1.5081	0.0810	-0.8999	78.5	-	-			
73	34	4002 Dec 03 06:35:37	15174 24772	N -t	1.5559	0.0444	-1.0377	64.9	-				
77	30	4006 Mar 28 04:13:50	15220 24813	N -t	-1.4882	0.1759	-0.9206	129.3	-	-			
67	32	4006 Sep 21 01:55:55	15227 24819	N -a	1.2488	0.5391	-0.4068	186.6	-	-			
71	37	4010 Jan 14 00:08:07	15273 24860	N -a	-1.4141	0.2523	-0.7263	133.1	-	-			
69	34	4013 May 09 02:11:34	15320 24901	N -a	1.3872	0.3019	-0.6772	147.1	-	-			
70	34	4013 Nov 01 05:42:44	15326 24907	N -t	-1.5375	0.0511	-0.9773	65.8	-	-			
69	32	4017 Feb 24 05:13:22	15373 24948	N -a	1.4721	0.1683	-0.8547	115.5	-	-			
67	30	4017 Aug 21 01:25:54	15380 24954	N -t	-1.2047	0.6686	-0.3736	231.6	-	-			
78	31	4024 Apr 07 11:57:11	15473 25036	N -t	-1.5150	0.1257	-0.9689	109.8	-	-			
68	33	4024 Oct 01 09:38:24	15480 25042	N -a	1.3107	0.4268	-0.5216	168.0	-	-			
72	38	4028 Jan 25 08:53:30	15526 25083	N -a	-1.4249	0.2338	-0.7472	128.7	-	-			
70	35	4031 May 20 10:09:05	15573 25124	N -a	1.4353	0.2137	-0.7652	125.1	-	-			
70	33	4035 Mar 07 13:45:07	15627 25171	N -a	1.4776	0.1563	-0.8627	111.0	-	-			
68	31	4035 Sep 01 08:11:28	15633 25177	N -t	-1.2881	0.5175	-0.5284	207.5	-	-			
79	32	4042 Apr 18 19:30:29	15727 25259	N -t	-1.5495	0.0614	-1.0310	77.2	-	-			
69	34	4042 Oct 12 17:27:31	15734 25265	N -a	1.3670	0.3252	-0.6263	148.3	-	-			
73	39	4046 Feb 04 17:41:23	15781 25306	N -a	-1.4335	0.2190	-0.7640	124.9	-	-			
71	36	4049 May 30 17:59:06	15828 25347	N -a	1.4885	0.1159	-0.8629	93.2	-	-			
71	34	4053 Mar 17 22:12:01	15882 25394	N -a	1.4873	0.1362	-0.8782	103.4	-	-			
69	32	4053 Sep 11 14:59:22	15889 25400	N -t	-1.3685	0.3722	-0.6778	179.1	-	-			
70	35	4060 Oct 23 01:21:25	15991 25488	N -a	1.4190	0.2315	-0.7235	126.4	-	-			
74	40	4064 Feb 16 02:28:14	16038 25529	N -a	-1.4427	0.2030	-0.7817	120.7	-	-			

72	37	4067	Jun 11	01:40:30	16085	25570	Ne	-a	1.5481	0.0068	-0.9724	22.8	-	-
72	35	4071	Mar 29	06:35:59	16140	25617	N	-a	1.4998	0.1107	-0.8989	93.1	-	-
70	33	4071	Sep 22	21:49:20	16147	25623	N	-t	-1.4459	0.2323	-0.8220	143.8	-	-
71	36	4078	Nov 03	09:21:57	16249	25711	N	-a	1.4655	0.1480	-0.8106	102.0	-	-
75	41	4082	Feb 26	11:13:50	16297	25752	N	-a	-1.4527	0.1853	-0.8006	115.7	-	-
73	36	4089	Apr 08	14:53:28	16400	25840	N	-a	1.5180	0.0747	-0.9298	76.4	-	-
71	34	4089	Oct 03	04:44:40	16407	25846	N	-t	-1.5181	0.1021	-0.9569	96.8	-	-
72	37	4096	Nov 13	17:28:56	16510	25934	N	-a	1.5067	0.0743	-0.8881	73.0	-	-
76	42	4100	Mar 09	19:56:03	16558	25975	N	-a	-1.4651	0.1628	-0.8238	108.9	-	-

42ND CENTURY CE

In the 42nd century CE the total number of lunar eclipses will be --- lunar eclipses: --- penumbral lunar eclipses, --- partial lunar eclipses, --- total lunar eclipses (--- central total lunar eclipses, --- non-central total lunar eclipses).

PHASE													
DURATIONS													
SEQ.	REL.	CALENDAR	TD	ΔT	LUNA	ECL.	QSE	GAMMA	PEN.	UM.	PEN.	PAR.	TOTAL
NUM.	NUM.	DATE	OF	s	NUM	TYPE			MAG.	MAG.	m	m	m
GREATEST													
ECLIPSE													
74	37	4107 Apr 20	23:06:44	16662	26063	N -a	1.5403	0.0311	-0.9679	49.3	-	-	
73	38	4114 Nov 26	01:43:41	16773	26157	Ne -a	1.5418	0.0119	-0.9546	29.4	-	-	
77	43	4118 Mar 21	04:34:51	16821	26198	N -a	-1.4800	0.1356	-0.8514	99.9	-	-	

78	44	4136	Mar 31	13:06:55	17087	26421	N	-a	-1.5003	0.0985	-0.8887	85.6	-	-
79	45	4154	Apr 11	21:33:08	17354	26644	N	-a	-1.5251	0.0530	-0.9341	63.2	-	-